



September 30, 2019

Mr. Carter Williamson
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street, SW, 11th Floor
Atlanta, Georgia 30303

Subject: **Emergency Response Letter Report**
HPPE Surfactant Spill
Columbus, Muscogee County, Georgia
Contract Number (No.): EP-S4-14-03
TDD No.: TT-01-119

Dear Mr. Williamson:

The Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) is submitting this emergency response (ER) letter report to summarize activities conducted on May 12, 2019 associated with the chemical spill at the High Performance Product Engineering (HPPE) facility located in Columbus, Muscogee County, Georgia. This report includes four enclosures and one attachment. Enclosure 1 contains figures illustrating the location of the site and sample locations. Enclosure 2 contains the soil and surface water sampling data summary tables. Enclosure 3 contains a photographic log of response activities. Enclosure 4 contains a copy of the Tetra Tech START logbook notes. Attachment 1 contains the laboratory analytical data package.

BACKGROUND

On May 12, 2019, several containers of surfactant, known as CS 92, released an unknown volume to the ground and towards Bull Creek at the HPPE facility located at 6909 Dixie Road in Columbus, Muscogee County, Georgia (see Figures 1 and 2 of Enclosure 1). The area in the immediate vicinity of the HPPE facility is comprised of industrial property to the north, south, and west and freshwater forested wetlands to the east. The HPPE facility specializes in industrial scale biopolymer-based product manufacturing and distribution. According to State and Federal officials, they were first alerted to the surfactant spill due to a fish kill in Bull Creek, located about 600 feet from where the spill originated.

Due to concerns regarding potential health hazards associated with the spill, Georgia Environmental Protection Division (GAEPD) requested US Environmental Protection Agency (EPA) assistance. EPA subsequently tasked Tetra Tech START to assist with the investigation.

SITE ACTIVITIES

On May 12, 2019, Carter Williamson, EPA On-Scene Coordinator (OSC), Angel White, GAEPD, and Tetra Tech START mobilized to the site to identify potential soil and surface water sampling locations. EPA tasked Tetra Tech START to collect soil and surface water samples, and document site conditions and response activities. Following arrival, Tetra Tech START observed a spill from a chemical tank and around totes that were stored on the facility. The property entrance was unlocked with employees present on site conducting on-going site activities. Tetra Tech START collected a total of three samples.

SAMPLING ACTIVITIES

Tetra Tech START collected one soil sample from a puddle just outside of the surfactant holding tank. The sample was collected along the edge of a rain/surfactant puddle outside of the chemical holding tanks (HPPE-SS-01). An additional two aqueous samples were taken; one from the rain/surfactant puddle and a second from a chemical tote containing the spill material (HPPE-SW-01 and HPPE-CB-01, respectively). The samples were analyzed for select volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), and metals.

Laboratory analysis included the following Methods:

- EPA Method 8260 for volatile organic Target Compound List compounds
- EPA Method 6020 for Total Analyte List (TAL) Metals
- National Institute for Occupational Safety and Health (NIOSH) Method 7470 for mercury
- SW-846 Method 8270 semi-volatile organic compounds (SVOC)

Laboratory analytical results revealed that phenol, copper, and zinc were detected at concentrations exceeding acute GAEPD Water Quality Standards (WQS) and lead exceeding chronic WQS in the surface water sample. No analytes were detected at concentrations exceeding their respective EPA removal management levels (RMLs) in the soil sample.

A summary of detected analytes is provided in Tables 1 through 3 in Enclosure 2 and the laboratory data package is provided in Attachment 1.

SUMMARY

EPA tasked Tetra Tech START to assist with soil and surface water sampling, and documentation of site conditions and response activities. Laboratory analytical results revealed the presence of phenol, copper, lead, and zinc at concentrations exceeding their respective WQSs in the surface water sample. No analytes were detected in exceedance of their respective EPA RMLs for soil samples. Although the totes were not definitively identified as the source, the amount of material immediately outside of the containment area that housed large processing vessels was most likely the origin of the spill material.

EPA and Tetra Tech START demobilized from the site on the evening of May 12, 2019. At the time of departure, employees of HPPE were working to further contain the contents of the surfactant spill.

If you have any questions or need additional copies of this report, please contact me at (678) 775-3081.

Sincerely,



Christopher Jones
START IV Project Manager



Andrew F. Johnson
START IV Program Manager

Enclosures (4)
Attachments (1)

cc: Katrina Jones, EPA Project Officer
Angel Reed, START IV Document Control Coordinator

ENCLOSURE 1

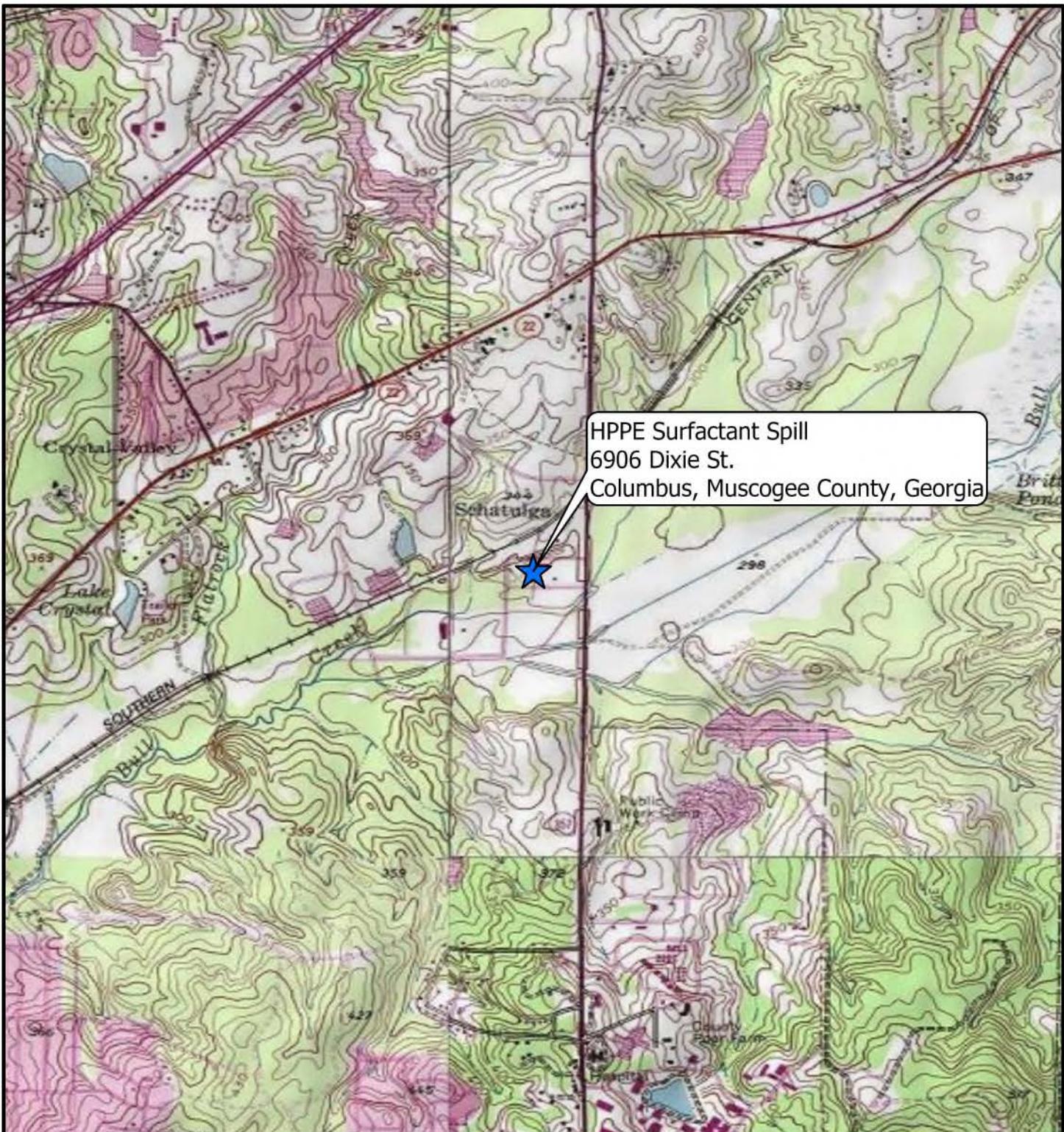
FIGURES

(2 Pages)



TETRA TECH

TDD No. TT-01-119
HPPE Surfactant Spill



Legend

★ Site Location



0 1,000 2,000
Feet



United States
Environmental Protection Agency
Region 4

FIGURE 1

Site Location

TDD Name: HPPE Surfactant Spill

TDD No.: TT-01-119

City:
Columbus

County:
Muscogee

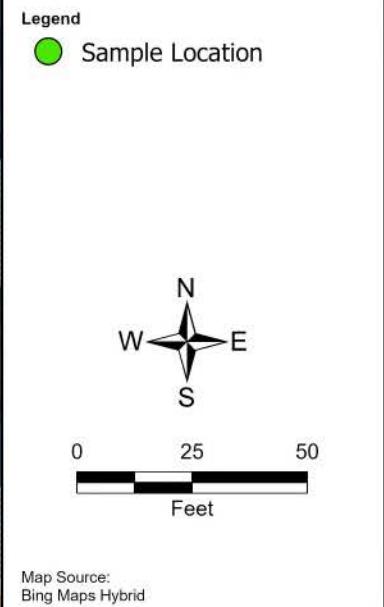
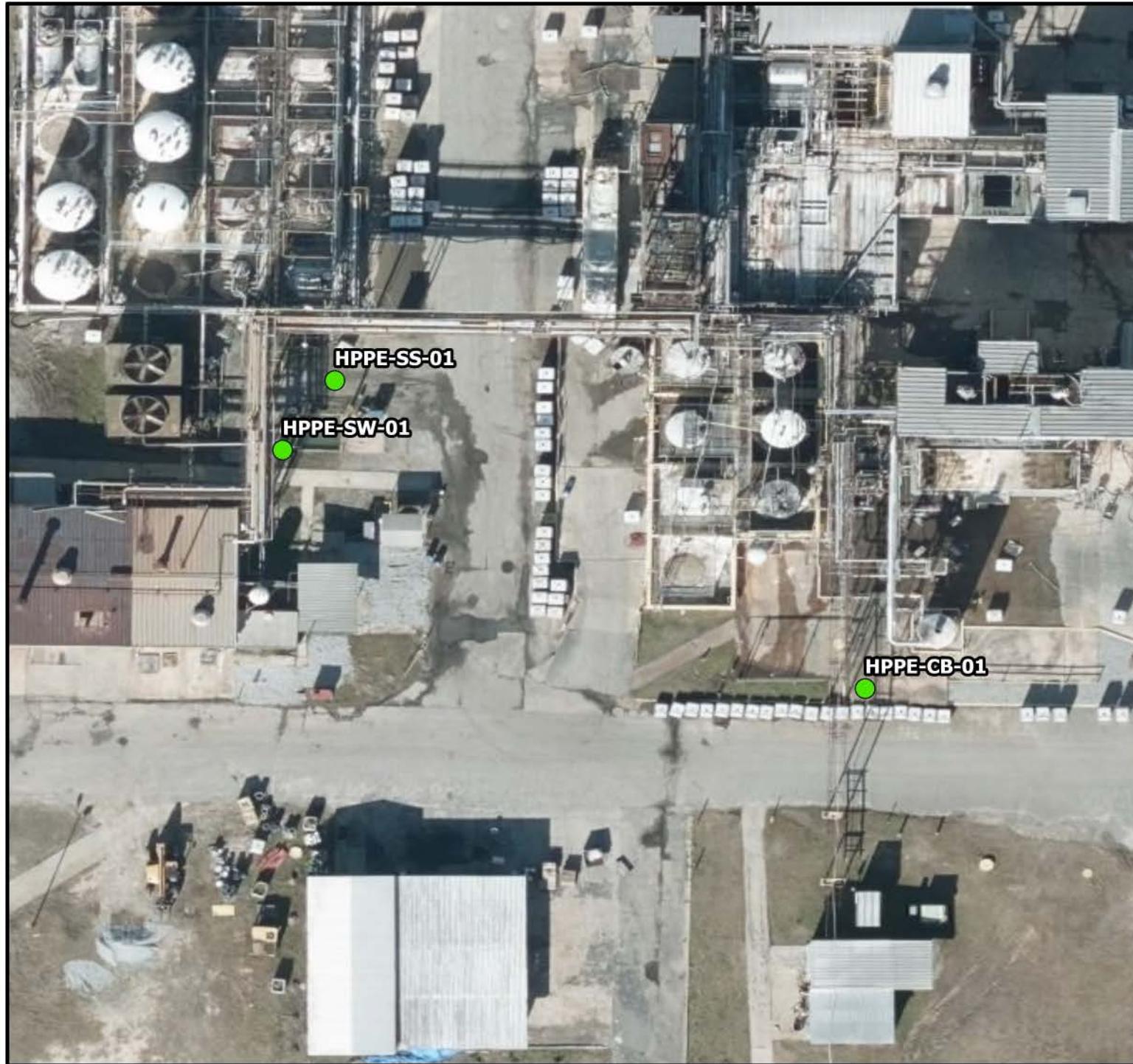
State:
Georgia



Map Source:
USGS 7.5 Minute Topographic Quadrangle Maps:
Fortson, Midland, Columbus, Ochilgee, GA 1986



Date:
7/22/2019
Analyst:
katie.wise



United States
Environmental Protection Agency
Region 4

FIGURE 2

Site Layout

TDD Name: HPPE Surfactant Spill

TDD No.: TT-01-119

City: Columbus County: Muscogee State: Georgia

Date: 7/22/2019
Analyst: katie.wise

TETRA TECH

ENCLOSURE 2
LABORATORY ANALYTICAL DATA SUMMARY TABLES
(Three Pages)

TABLE 1
ANALYTICAL RESULTS FOR SURFACE WATER SAMPLE
HPPE SURFACTANT SPILL
COLUMBUS, MUSCOGEE COUNTY, GEORGIA

Analyte	GAEPD WQS		HPPE-SW-01
	Acute	Chronic	
Volatile Organic Compounds (µg/L)			
Acetone	NE	NE	14,000 J-
Semivolatile Organic Compounds (µg/L)			
Phenol	300	857,000	4,200
Metals (mg/L)			
Aluminum	NE	NE	0.646
Barium	NE	NE	0.0899
Calcium	NE	NE	661
Cobalt	NE	NE	0.0199 J
Copper	0.007	0.005	0.0261
Iron	NE	NE	14.9
Lead	0.03	0.0012	0.0066 J
Magnesium	NE	NE	198
Manganese	NE	NE	1.11
Nickel	0.26	0.029	0.0242
Potassium	NE	NE	459
Sodium	NE	NE	217
Thallium	NE	NE	0.0229
Vanadium	NE	NE	0.0056 J
Zinc	0.065	0.065	0.942

Notes:

GAEPD: Georgia Environmental Protection Division

HPPE: High Performance Product Engineering

J: The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

J-: The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.

µg/L: Micrograms per liter

NE: Not established

SW: Surface Water

WQS: Water Quality Standards for freshwater

Shaded values exceed either the acute or chronic freshwater GAEPD WQS.

TABLE 2
ANALYTICAL RESULTS FOR SOIL SAMPLE
HPPE SURFACTANT SPILL
COLUMBUS, MUSCOGEE COUNTY, GEORGIA

Analyte	EPA RML	HPPE-SS-01
	Industrial Soil	
Volatile Organic Compounds (µg/Kg-dry)		
1,2,4-Trichlorobenzene	1,100,000	3.6 J-
2-Butanone	NE	85 J-
2-Hexanone	4,000,000	5.1 J-
Acetone	2,600,000,000	16,000 J-
Chloroform	140,000	3.3 J-
Chloromethane	1,400,000	3.2 J-
Ethylbenzene	2,500,000	1.3 J-
m,p-Xylene	7,100,000	4.3 J-
o-Xylene	8,400,000	1.8 J-
Toluene	140,000,000	1.7 J-
Semivolatile Organic Compounds (µg/Kg-dry)		
Caprolactam	1,200,000,000	420 J-
Metals (mg/Kg-dry)		
Aluminum	3,400,000	3,030
Antimony	1,400	1.49 J
Arsenic	300	0.785 J
Barium	650,000	73.4
Beryllium	6,900	0.228 J
Cadmium	2,900	0.382 J
Calcium	NE	10,800
Chromium	630	12.0
Cobalt	NE	3.47
Copper	140,000	1,480
Iron	2,500,000	7,650
Lead	800	3.55 J
Magnesium	NE	2,300
Manganese	77,000	94.8
Nickel	NE	11.7
Potassium	NE	2,010
Silver	18,000	0.0796 J
Sodium	NE	626
Thallium	NE	0.905 J
Vanadium	NE	11.0
Zinc	1,100,000	737
Mercury (mg/Kg-dry)		
Mercury	NE	0.016 J

Notes:

EPA: Environmental Protection Agency

HPPE: High Performance Product Engineering

J: The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

J-: The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.

mg/Kg: Milligrams per kilogram

NE: Not established

µg/kg: Micrograms per kilogram

RML: Removal Management Level

SS: Surface Soil

TABLE 3
PRODUCT SAMPLE ANALYTICAL RESULTS COMPARED TO SURFACE SOIL AND WATER SAMPLES
HPPE SURFACTANT SPILL
COLUMBUS, MUSCOGEE COUNTY, GEORGIA

Analyte	Surface Water HPPE-SW-01	Soil HPPE-SS-01	HPPE-CB-01
Volatile Organic Compounds	ug/L	ug/Kg-dry	ug/L
Acetone	14,000 J-	16,000 J-	2,700
Semivolatile Organic Compounds	ug/L	ug/kg-dry	ug/L
Phenol	4,200	ND	29 J
Metals	mg/L	mg/kg-dry	mg/L
Aluminum	0.646	3,030	3.13
Antimony	ND	1.49 J	0.0337
Barium	0.0899	73.4	0.727
Cadmium	ND	0.382 J	0.0123
Calcium	661	10,800	3460
Chromium	ND	12	0.0064 J
Cobalt	0.0199 J	3.47	0.0425
Copper	0.0261	1,480	0.385
Iron	14.9	7,650	11.5
Lead	0.0066 J	3.55 J	0.0347
Magnesium	198	2,300	987
Manganese	1	94.8	10.0
Nickel	0.0242	11.7	0.0580
Potassium	459	2,010	2330
Selenium	ND	0.0796 J	0.0498
Sodium	217	626	1720
Thallium	0.0229	0.905 J	0.104
Vanadium	0.0056 J	11	0.0138
Zinc	0.0942	737	2.26
Mercury	mg/L	mg/Kg-dry	mg/L
Mercury	ND	0.016 J	0.00864

Notes:

HPPE: High Performance Product Engineering

J: The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.

J-: The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.

mg/Kg: Milligrams per kilogram

mg/L: Milligrams per liter

ND: Not detected at or above the associated value reporting limit (RL)

SS: Surface Soil

SW: Surface Water

μg/Kg: Micrograms per kilogram

μg/L: Micrograms per liter

ENCLOSURE 3
PHOTOGRAPHIC LOG
(One Page)



OFFICIAL PHOTOGRAPH NO. 1
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TT-01-119

Location: 6906 Dixie Street, Columbus,
Muscogee County, Georgia

Orientation: North

Date: May 12, 2019

Photographer: Amber Falkner, Tetra Tech, Inc.
(Tetra Tech)

Witness: Eric Huss, Tetra Tech

Subject: On Sunday, May 12, 2019, EPA and Tetra Tech START responded to a surfactant spill in Columbus, Muscogee County, Georgia. Georgia Environmental Protection Division (GAEPD) informed the EPA of the spill following a fish kill in Bull Creek. START collected a soil sediment sample from outside a chemical holding tank where an unknown amount of the surfactant, known as CS 92, was released.

ENCLOSURE 4
LOGBOOK NOTES
(Two Pages)



Rite in the Rain.
ALL-WEATHER
UNIVERSAL
Nº 371FX

HPPE spill -01-119

2 05-12-2019

1700 - Falkner + Williamson on-site.

Plan is to conduct surface water sampling after spill.

1730 - Huss ^{TGA DNR} + Angel White on-site.

1757 - Plan is to take 3 aqueous and 1 solid sample from totes, rain puddles, and sediment from where spill occurred.

CB, SW, SD

CB 01 at 6:08

SW 01 at 6:30

SS ~~SD~~ 01 at 6:40

1900 - Huss, Williamson + Falkner off-site.

Amlur Falkner
05-12-2019

Scale: 1 square =

Scale: 1 square = _____

Rite in the Rain

3

ATTACHMENT 1
LABORATORY ANALYTICAL DATA PACKAGE
(58 Pages)



ANALYTICAL ENVIRONMENTAL SERVICES, INC.

May 21, 2019

Jessica Vickers
Tetra Tech EM Inc.

1955 Evergreen Blvd.
Duluth GA 30096

RE: HPPE Columbus GA Fish Kill

Dear Jessica Vickers:

Order No: 1905B96

Analytical Environmental Services, Inc. received 4 samples on 5/13/2019 3:37:00 PM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.

AES's accreditations are as follows:

-NELAP/State of Florida Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, Air & Emissions Volatile Organics, and Drinking Water Microbiology & Metals, effective 07/01/18-06/30/19.

State of Georgia, Department of Natural Resources ID #800 for analysis of Drinking Water Metals, effective 07/01/18-06/30/19 and Total Coliforms/ E. coli, effective 04/25/17-04/24/20.

-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Metals and PCM Asbestos), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 11/01/19.

These results relate only to the items tested as received. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Paris Masoudi
Project Manager

CHAIN OF CUSTODY RECORD
HPPE COLUMBUS GA FISH KILL
Contact Name: Chris Jones
Contact Phone: 404-395-5220

1905894

Lab #	Sample ID	Media	Sample Time	Sampler	Event ID	Analyses	Date Collected	Numb Cont	Container	MS/MSD
	HPPE-CB-01	Aqueous	18:08	Amber Falkner	HPPE Columbus GA Fish Kill	VOC, SVOC, and TAL metals	5/12/2019	6	1 L glass/plastic and vials	N
	HPPE-SW-01	Surface Water	18:30	Amber Falkner	HPPE Columbus GA Fish Kill	VOC, SVOC, and TAL metals	5/12/2019	6	1 L glass/plastic and vials	N
	HPPE-SS-01	Soil	18:40	Amber Falkner	HPPE Columbus GA Fish Kill	VOC, SVOC, and TAL metals	5/12/2019	3	4 oz glass jars	N

All samples are grab samples

Chain of Custody #

Items/Reason	Relinquished by	Date	Received by	Date	Time
Analysis	Amber Falkner	5.13.2019	Jnj - Client	5.13.19	1537

Client: Tetra Tech EM Inc.
Project: HPPE Columbus GA Fish Kill
Lab ID: 1905B96

Case Narrative

Sample Receiving Nonconformance:

Two vials from sample 1905B96-001 were received with headspace present. Laboratory proceeded with analysis on the remaining vial with no headspace present.

All three vials from sample 1905B96-002 were received with headspace present. Laboratory proceeded with analysis at the request of Chris Jones via email on 5/14/19.

Preserved soil vials in accordance with method 5035 were not received for sample 1905B96-003. Preserved soil vials were prepared at the laboratory from the sample jar per client request.

A trip blank was provided but not listed on the Chain of Custody (COC).

Volatile Organic Compounds Analysis by Method 8260D:

Due to sample matrix, samples 1905B96-001A, & -002A required dilution during preparation and/or analysis resulting in elevated reporting limits. These samples were foamy.

Percent recovery for the internal standard compounds Chlorobenzene-d5 and 1,4-Dichlorobenzene-d4 on sample 1905B96-003A was outside control limits biased low due to suspected matrix interference. The sample was run twice.

Mercury Analysis by Method 7470:

Due to sample matrix, sample 1905B96-002C required dilution during preparation resulting in elevated reporting limits.

Semi-Volatiles Organic Compounds Analysis by Method 8270:

Due to sample matrix, samples 1905B96-001B & 002B required dilution during preparation and/or analysis resulting in elevated reporting limits.

Analytical Environmental Services, Inc
Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	HPPE-CB-01
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019 6:08:00 PM
Lab ID:	1905B96-001	Matrix:	Aqueous

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL-SEMICVOLATILE ORGANICS SW8270E (SW3510C)									
1,1'-Biphenyl	BRL	7.8	100	ug/L	279210	10	05/17/2019 19:20	YH	
2,4,5-Trichlorophenol	BRL	9.9	250	ug/L	279210	10	05/17/2019 19:20	YH	
2,4,6-Trichlorophenol	BRL	13	100	ug/L	279210	10	05/17/2019 19:20	YH	
2,4-Dichlorophenol	BRL	10	100	ug/L	279210	10	05/17/2019 19:20	YH	
2,4-Dimethylphenol	BRL	7.2	100	ug/L	279210	10	05/17/2019 19:20	YH	
2,4-Dinitrophenol	BRL	55	250	ug/L	279210	10	05/17/2019 19:20	YH	
2,4-Dinitrotoluene	BRL	11	100	ug/L	279210	10	05/17/2019 19:20	YH	
2,6-Dinitrotoluene	BRL	13	100	ug/L	279210	10	05/17/2019 19:20	YH	
2-Chloronaphthalene	BRL	18	100	ug/L	279210	10	05/17/2019 19:20	YH	
2-Chlorophenol	BRL	12	100	ug/L	279210	10	05/17/2019 19:20	YH	
2-Methylnaphthalene	BRL	12	100	ug/L	279210	10	05/17/2019 19:20	YH	
2-Methylphenol	BRL	13	100	ug/L	279210	10	05/17/2019 19:20	YH	
2-Nitroaniline	BRL	19	250	ug/L	279210	10	05/17/2019 19:20	YH	
2-Nitrophenol	BRL	16	100	ug/L	279210	10	05/17/2019 19:20	YH	
3,3'-Dichlorobenzidine	BRL	11	100	ug/L	279210	10	05/17/2019 19:20	YH	
3-Nitroaniline	BRL	12	250	ug/L	279210	10	05/17/2019 19:20	YH	
4,6-Dinitro-2-methylphenol	BRL	13	250	ug/L	279210	10	05/17/2019 19:20	YH	
4-Bromophenyl phenyl ether	BRL	14	100	ug/L	279210	10	05/17/2019 19:20	YH	
4-Chloro-3-methylphenol	BRL	8.1	100	ug/L	279210	10	05/17/2019 19:20	YH	
4-Chloroaniline	BRL	21	100	ug/L	279210	10	05/17/2019 19:20	YH	
4-Chlorophenyl phenyl ether	BRL	13	100	ug/L	279210	10	05/17/2019 19:20	YH	
4-Methylphenol	BRL	23	100	ug/L	279210	10	05/17/2019 19:20	YH	
4-Nitroaniline	BRL	13	250	ug/L	279210	10	05/17/2019 19:20	YH	
4-Nitrophenol	BRL	7.7	250	ug/L	279210	10	05/17/2019 19:20	YH	
Acenaphthene	BRL	11	100	ug/L	279210	10	05/17/2019 19:20	YH	
Acenaphthylene	BRL	11	100	ug/L	279210	10	05/17/2019 19:20	YH	
Acetophenone	BRL	21	100	ug/L	279210	10	05/17/2019 19:20	YH	
Anthracene	BRL	8.2	100	ug/L	279210	10	05/17/2019 19:20	YH	
Atrazine	BRL	7.8	100	ug/L	279210	10	05/17/2019 19:20	YH	
Benz(a)anthracene	BRL	9.6	100	ug/L	279210	10	05/17/2019 19:20	YH	
Benzaldehyde	BRL	13	100	ug/L	279210	10	05/17/2019 19:20	YH	
Benzo(a)pyrene	BRL	9.6	100	ug/L	279210	10	05/17/2019 19:20	YH	
Benzo(b)fluoranthene	BRL	15	100	ug/L	279210	10	05/17/2019 19:20	YH	
Benzo(g,h,i)perylene	BRL	13	100	ug/L	279210	10	05/17/2019 19:20	YH	
Benzo(k)fluoranthene	BRL	15	100	ug/L	279210	10	05/17/2019 19:20	YH	
Bis(2-chloroethoxy)methane	BRL	11	100	ug/L	279210	10	05/17/2019 19:20	YH	
Bis(2-chloroethyl)ether	BRL	12	100	ug/L	279210	10	05/17/2019 19:20	YH	
Bis(2-chloroisopropyl)ether	BRL	15	100	ug/L	279210	10	05/17/2019 19:20	YH	
Bis(2-ethylhexyl)phthalate	BRL	14	100	ug/L	279210	10	05/17/2019 19:20	YH	

Qualifiers: * Value exceeds maximum contaminant level

BRL Not detected at MDL

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

NC Not confirmed

E Estimated value above quantitation range

S Spike Recovery outside limits due to matrix

J Estimated value detected below Reporting Limit

> Greater than Result value

< Less than Result value

Narr See case narrative

Analytical Environmental Services, Inc
Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	HPPE-CB-01
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019 6:08:00 PM
Lab ID:	1905B96-001	Matrix:	Aqueous

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL-SEMITOLATILE ORGANICS SW8270E									
(SW3510C)									
Butyl benzyl phthalate	BRL		8.4	100	ug/L	279210	10	05/17/2019 19:20	YH
Caprolactam	BRL		13	100	ug/L	279210	10	05/17/2019 19:20	YH
Carbazole	BRL		7.5	100	ug/L	279210	10	05/17/2019 19:20	YH
Chrysene	BRL		9.3	100	ug/L	279210	10	05/17/2019 19:20	YH
Di-n-butyl phthalate	BRL		11	100	ug/L	279210	10	05/17/2019 19:20	YH
Di-n-octyl phthalate	BRL		16	100	ug/L	279210	10	05/17/2019 19:20	YH
Dibenz(a,h)anthracene	BRL		14	100	ug/L	279210	10	05/17/2019 19:20	YH
Dibenzofuran	BRL		11	100	ug/L	279210	10	05/17/2019 19:20	YH
Diethyl phthalate	BRL		8.2	100	ug/L	279210	10	05/17/2019 19:20	YH
Dimethyl phthalate	BRL		10	100	ug/L	279210	10	05/17/2019 19:20	YH
Fluoranthene	BRL		10	100	ug/L	279210	10	05/17/2019 19:20	YH
Fluorene	BRL		12	100	ug/L	279210	10	05/17/2019 19:20	YH
Hexachlorobenzene	BRL		11	100	ug/L	279210	10	05/17/2019 19:20	YH
Hexachlorobutadiene	BRL		12	100	ug/L	279210	10	05/17/2019 19:20	YH
Hexachlorocyclopentadiene	BRL		21	100	ug/L	279210	10	05/17/2019 19:20	YH
Hexachloroethane	BRL		13	100	ug/L	279210	10	05/17/2019 19:20	YH
Indeno(1,2,3-cd)pyrene	BRL		12	100	ug/L	279210	10	05/17/2019 19:20	YH
Isophorone	BRL		8.6	100	ug/L	279210	10	05/17/2019 19:20	YH
N-Nitrosodi-n-propylamine	BRL		8.2	100	ug/L	279210	10	05/17/2019 19:20	YH
N-Nitrosodiphenylamine	BRL		9.0	100	ug/L	279210	10	05/17/2019 19:20	YH
Naphthalene	BRL		12	100	ug/L	279210	10	05/17/2019 19:20	YH
Nitrobenzene	BRL		12	100	ug/L	279210	10	05/17/2019 19:20	YH
Pentachlorophenol	BRL		6.2	250	ug/L	279210	10	05/17/2019 19:20	YH
Phenanthrene	BRL		8.6	100	ug/L	279210	10	05/17/2019 19:20	YH
Phenol	29	J	7.7	100	ug/L	279210	10	05/17/2019 19:20	YH
Pyrene	BRL		8.3	100	ug/L	279210	10	05/17/2019 19:20	YH
Surr: 2,4,6-Tribromophenol	0	S	0	47-127	%REC	279210	10	05/17/2019 19:20	YH
Surr: 2-Fluorobiphenyl	0	S	0	47.4-119	%REC	279210	10	05/17/2019 19:20	YH
Surr: 2-Fluorophenol	0	S	0	26.2-120	%REC	279210	10	05/17/2019 19:20	YH
Surr: 4-Terphenyl-d14	0	S	0	45-133	%REC	279210	10	05/17/2019 19:20	YH
Surr: Nitrobenzene-d5	0	S	0	41.9-121	%REC	279210	10	05/17/2019 19:20	YH
Surr: Phenol-d5	0	S	0	17.8-120	%REC	279210	10	05/17/2019 19:20	YH
TCL VOLATILE ORGANICS SW8260D									
(SW5030B)									
1,1,1-Trichloroethane	BRL		15	250	ug/L	279207	50	05/17/2019 22:01	BK
1,1,2,2-Tetrachloroethane	BRL		17	250	ug/L	279207	50	05/17/2019 22:01	BK
1,1,2-Trichloroethane	BRL		22	250	ug/L	279207	50	05/17/2019 22:01	BK
1,1-Dichloroethane	BRL		21	250	ug/L	279207	50	05/17/2019 22:01	BK
1,1-Dichloroethene	BRL		20	250	ug/L	279207	50	05/17/2019 22:01	BK

Qualifiers: * Value exceeds maximum contaminant level

BRL Not detected at MDL

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

NC Not confirmed

E Estimated value above quantitation range

S Spike Recovery outside limits due to matrix

J Estimated value detected below Reporting Limit

> Greater than Result value

< Less than Result value

Narr See case narrative

Analytical Environmental Services, Inc
Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	HPPE-CB-01
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019 6:08:00 PM
Lab ID:	1905B96-001	Matrix:	Aqueous

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D									
					(SW5030B)				
1,2,4-Trichlorobenzene	BRL	20	250	ug/L	279207	50	05/17/2019 22:01		BK
1,2-Dibromo-3-chloropropane	BRL	34	250	ug/L	279207	50	05/17/2019 22:01		BK
1,2-Dibromoethane	BRL	29	250	ug/L	279207	50	05/17/2019 22:01		BK
1,2-Dichlorobenzene	BRL	22	250	ug/L	279207	50	05/17/2019 22:01		BK
1,2-Dichloroethane	BRL	19	250	ug/L	279207	50	05/17/2019 22:01		BK
1,2-Dichloropropane	BRL	17	250	ug/L	279207	50	05/17/2019 22:01		BK
1,3-Dichlorobenzene	BRL	15	250	ug/L	279207	50	05/17/2019 22:01		BK
1,4-Dichlorobenzene	BRL	16	250	ug/L	279207	50	05/17/2019 22:01		BK
2-Butanone	BRL	130	2500	ug/L	279207	50	05/17/2019 22:01		BK
2-Hexanone	BRL	34	500	ug/L	279207	50	05/17/2019 22:01		BK
4-Methyl-2-pentanone	BRL	22	500	ug/L	279207	50	05/17/2019 22:01		BK
Acetone	2700	180	2500	ug/L	279207	50	05/17/2019 22:01		BK
Benzene	BRL	19	250	ug/L	279207	50	05/17/2019 22:01		BK
Bromodichloromethane	BRL	12	250	ug/L	279207	50	05/17/2019 22:01		BK
Bromoform	BRL	9.7	250	ug/L	279207	50	05/17/2019 22:01		BK
Bromomethane	BRL	19	250	ug/L	279207	50	05/17/2019 22:01		BK
Carbon disulfide	BRL	37	250	ug/L	279207	50	05/17/2019 22:01		BK
Carbon tetrachloride	BRL	15	250	ug/L	279207	50	05/17/2019 22:01		BK
Chlorobenzene	BRL	21	250	ug/L	279207	50	05/17/2019 22:01		BK
Chloroethane	BRL	15	500	ug/L	279207	50	05/17/2019 22:01		BK
Chloroform	BRL	9.9	250	ug/L	279207	50	05/17/2019 22:01		BK
Chloromethane	BRL	11	500	ug/L	279207	50	05/17/2019 22:01		BK
cis-1,2-Dichloroethene	BRL	14	250	ug/L	279207	50	05/17/2019 22:01		BK
cis-1,3-Dichloropropene	BRL	15	250	ug/L	279207	50	05/17/2019 22:01		BK
Cyclohexane	BRL	52	250	ug/L	279207	50	05/17/2019 22:01		BK
Dibromochloromethane	BRL	22	250	ug/L	279207	50	05/17/2019 22:01		BK
Dichlorodifluoromethane	BRL	7.5	500	ug/L	279207	50	05/17/2019 22:01		BK
Ethylbenzene	BRL	13	250	ug/L	279207	50	05/17/2019 22:01		BK
Freon-113	BRL	16	500	ug/L	279207	50	05/17/2019 22:01		BK
Isopropylbenzene	BRL	21	250	ug/L	279207	50	05/17/2019 22:01		BK
m,p-Xylene	BRL	30	250	ug/L	279207	50	05/17/2019 22:01		BK
Methyl acetate	BRL	21	250	ug/L	279207	50	05/17/2019 22:01		BK
Methyl tert-butyl ether	BRL	22	250	ug/L	279207	50	05/17/2019 22:01		BK
Methylcyclohexane	BRL	20	250	ug/L	279207	50	05/17/2019 22:01		BK
Methylene chloride	BRL	59	250	ug/L	279207	50	05/17/2019 22:01		BK
o-Xylene	BRL	8.9	250	ug/L	279207	50	05/17/2019 22:01		BK
Styrene	BRL	7.7	250	ug/L	279207	50	05/17/2019 22:01		BK
Tetrachloroethene	BRL	23	250	ug/L	279207	50	05/17/2019 22:01		BK
Toluene	BRL	20	250	ug/L	279207	50	05/17/2019 22:01		BK

Qualifiers: * Value exceeds maximum contaminant level

BRL Not detected at MDL

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

NC Not confirmed

E Estimated value above quantitation range

S Spike Recovery outside limits due to matrix

J Estimated value detected below Reporting Limit

> Greater than Result value

< Less than Result value

Narr See case narrative

Analytical Environmental Services, Inc

Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	HPPE-CB-01
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019 6:08:00 PM
Lab ID:	1905B96-001	Matrix:	Aqueous

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D									
(SW5030B)									
trans-1,2-Dichloroethene	BRL		15	250	ug/L	279207	50	05/17/2019 22:01	BK
trans-1,3-Dichloropropene	BRL		16	250	ug/L	279207	50	05/17/2019 22:01	BK
Trichloroethene	BRL		15	250	ug/L	279207	50	05/17/2019 22:01	BK
Trichlorofluoromethane	BRL		9.0	250	ug/L	279207	50	05/17/2019 22:01	BK
Vinyl chloride	BRL		15	100	ug/L	279207	50	05/17/2019 22:01	BK
Surr: 4-Bromofluorobenzene	105		0	64-125	%REC	279207	50	05/17/2019 22:01	BK
Surr: Dibromofluoromethane	111		0	76.4-125	%REC	279207	50	05/17/2019 22:01	BK
Surr: Toluene-d8	98.1		0	78.3-116	%REC	279207	50	05/17/2019 22:01	BK
METALS, TOTAL SW6010D									
(SW3010A)									
Aluminum	3.13		0.0211	0.200	mg/L	279194	1	05/17/2019 12:08	AJ
Antimony	0.0337		0.0072	0.0200	mg/L	279194	1	05/17/2019 12:08	AJ
Arsenic	BRL		0.0072	0.0500	mg/L	279194	1	05/17/2019 12:08	AJ
Barium	0.727		0.0027	0.0200	mg/L	279194	1	05/17/2019 12:08	AJ
Beryllium	BRL		0.0015	0.0100	mg/L	279194	1	05/17/2019 12:08	AJ
Cadmium	0.0123		0.0019	0.0050	mg/L	279194	1	05/17/2019 12:08	AJ
Calcium	3460		3.56	10.0	mg/L	279194	100	05/17/2019 12:34	AJ
Chromium	0.0064	J	0.0032	0.0100	mg/L	279194	1	05/17/2019 12:08	AJ
Cobalt	0.0425		0.0029	0.0200	mg/L	279194	1	05/17/2019 12:08	AJ
Copper	0.385		0.0015	0.0100	mg/L	279194	1	05/17/2019 12:08	AJ
Iron	11.5		0.0442	0.100	mg/L	279194	1	05/17/2019 12:08	AJ
Lead	0.0347		0.0038	0.0100	mg/L	279194	1	05/17/2019 12:08	AJ
Magnesium	987		0.0880	1.00	mg/L	279194	10	05/17/2019 12:32	AJ
Manganese	10.0		0.0009	0.0150	mg/L	279194	1	05/17/2019 12:08	AJ
Nickel	0.0580		0.0036	0.0200	mg/L	279194	1	05/17/2019 12:08	AJ
Potassium	2330		11.5	50.0	mg/L	279194	100	05/17/2019 13:22	AJ
Selenium	0.0498		0.0074	0.0200	mg/L	279194	1	05/17/2019 12:08	AJ
Silver	BRL		0.0026	0.0100	mg/L	279194	1	05/17/2019 12:08	AJ
Sodium	1720		10.9	100	mg/L	279194	100	05/17/2019 12:34	AJ
Thallium	0.104		0.0088	0.0200	mg/L	279194	1	05/17/2019 12:08	AJ
Vanadium	0.0138		0.0012	0.0100	mg/L	279194	1	05/17/2019 12:08	AJ
Zinc	2.26		0.0073	0.0200	mg/L	279194	1	05/17/2019 12:08	AJ
Mercury, Total SW7470A									
(SW7470A)									
Mercury	0.00864		0.00240	0.00800	mg/L	279253	1	05/17/2019 17:36	EH

Qualifiers: * Value exceeds maximum contaminant level

E Estimated value above quantitation range

BRL Not detected at MDL

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

J Estimated value detected below Reporting Limit

N Analyte not NELAC certified

> Greater than Result value

B Analyte detected in the associated method blank

< Less than Result value

NC Not confirmed

Narr See case narrative

Analytical Environmental Services, Inc

Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	HPPE-SW-01
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019 6:30:00 PM
Lab ID:	1905B96-002	Matrix:	Surface Water

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL-SEMITOLATILE ORGANICS SW8270E		(SW3510C)							
1,1'-Biphenyl	BRL	54	700	ug/L	279210	10	05/17/2019 19:48		YH
2,4,5-Trichlorophenol	BRL	70	1800	ug/L	279210	10	05/17/2019 19:48		YH
2,4,6-Trichlorophenol	BRL	92	700	ug/L	279210	10	05/17/2019 19:48		YH
2,4-Dichlorophenol	BRL	72	700	ug/L	279210	10	05/17/2019 19:48		YH
2,4-Dimethylphenol	BRL	50	700	ug/L	279210	10	05/17/2019 19:48		YH
2,4-Dinitrophenol	BRL	380	1800	ug/L	279210	10	05/17/2019 19:48		YH
2,4-Dinitrotoluene	BRL	74	700	ug/L	279210	10	05/17/2019 19:48		YH
2,6-Dinitrotoluene	BRL	88	700	ug/L	279210	10	05/17/2019 19:48		YH
2-Chloronaphthalene	BRL	130	700	ug/L	279210	10	05/17/2019 19:48		YH
2-Chlorophenol	BRL	81	700	ug/L	279210	10	05/17/2019 19:48		YH
2-Methylnaphthalene	BRL	83	700	ug/L	279210	10	05/17/2019 19:48		YH
2-Methylphenol	BRL	92	700	ug/L	279210	10	05/17/2019 19:48		YH
2-Nitroaniline	BRL	140	1800	ug/L	279210	10	05/17/2019 19:48		YH
2-Nitrophenol	BRL	110	700	ug/L	279210	10	05/17/2019 19:48		YH
3,3'-Dichlorobenzidine	BRL	76	700	ug/L	279210	10	05/17/2019 19:48		YH
3-Nitroaniline	BRL	87	1800	ug/L	279210	10	05/17/2019 19:48		YH
4,6-Dinitro-2-methylphenol	BRL	88	1800	ug/L	279210	10	05/17/2019 19:48		YH
4-Bromophenyl phenyl ether	BRL	96	700	ug/L	279210	10	05/17/2019 19:48		YH
4-Chloro-3-methylphenol	BRL	57	700	ug/L	279210	10	05/17/2019 19:48		YH
4-Chloroaniline	BRL	150	700	ug/L	279210	10	05/17/2019 19:48		YH
4-Chlorophenyl phenyl ether	BRL	89	700	ug/L	279210	10	05/17/2019 19:48		YH
4-Methylphenol	BRL	160	700	ug/L	279210	10	05/17/2019 19:48		YH
4-Nitroaniline	BRL	94	1800	ug/L	279210	10	05/17/2019 19:48		YH
4-Nitrophenol	BRL	54	1800	ug/L	279210	10	05/17/2019 19:48		YH
Acenaphthene	BRL	80	700	ug/L	279210	10	05/17/2019 19:48		YH
Acenaphthylene	BRL	76	700	ug/L	279210	10	05/17/2019 19:48		YH
Acetophenone	BRL	150	700	ug/L	279210	10	05/17/2019 19:48		YH
Anthracene	BRL	58	700	ug/L	279210	10	05/17/2019 19:48		YH
Atrazine	BRL	54	700	ug/L	279210	10	05/17/2019 19:48		YH
Benz(a)anthracene	BRL	67	700	ug/L	279210	10	05/17/2019 19:48		YH
Benzaldehyde	BRL	90	700	ug/L	279210	10	05/17/2019 19:48		YH
Benzo(a)pyrene	BRL	67	700	ug/L	279210	10	05/17/2019 19:48		YH
Benzo(b)fluoranthene	BRL	100	700	ug/L	279210	10	05/17/2019 19:48		YH
Benzo(g,h,i)perylene	BRL	91	700	ug/L	279210	10	05/17/2019 19:48		YH
Benzo(k)fluoranthene	BRL	110	700	ug/L	279210	10	05/17/2019 19:48		YH
Bis(2-chloroethoxy)methane	BRL	75	700	ug/L	279210	10	05/17/2019 19:48		YH
Bis(2-chloroethyl)ether	BRL	84	700	ug/L	279210	10	05/17/2019 19:48		YH
Bis(2-chloroisopropyl)ether	BRL	100	700	ug/L	279210	10	05/17/2019 19:48		YH
Bis(2-ethylhexyl)phthalate	BRL	96	700	ug/L	279210	10	05/17/2019 19:48		YH

Qualifiers: * Value exceeds maximum contaminant level

E Estimated value above quantitation range

BRL Not detected at MDL

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

J Estimated value detected below Reporting Limit

N Analyte not NELAC certified

> Greater than Result value

B Analyte detected in the associated method blank

< Less than Result value

NC Not confirmed

Narr See case narrative

Analytical Environmental Services, Inc
Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	HPPE-SW-01
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019 6:30:00 PM
Lab ID:	1905B96-002	Matrix:	Surface Water

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst	
TCL-SEMITOLATILE ORGANICS SW8270E										
(SW3510C)										
Butyl benzyl phthalate	BRL	59	700	ug/L	279210	10	05/17/2019 19:48		YH	
Caprolactam	BRL	92	700	ug/L	279210	10	05/17/2019 19:48		YH	
Carbazole	BRL	52	700	ug/L	279210	10	05/17/2019 19:48		YH	
Chrysene	BRL	65	700	ug/L	279210	10	05/17/2019 19:48		YH	
Di-n-butyl phthalate	BRL	74	700	ug/L	279210	10	05/17/2019 19:48		YH	
Di-n-octyl phthalate	BRL	110	700	ug/L	279210	10	05/17/2019 19:48		YH	
Dibenz(a,h)anthracene	BRL	100	700	ug/L	279210	10	05/17/2019 19:48		YH	
Dibenzofuran	BRL	75	700	ug/L	279210	10	05/17/2019 19:48		YH	
Diethyl phthalate	BRL	57	700	ug/L	279210	10	05/17/2019 19:48		YH	
Dimethyl phthalate	BRL	72	700	ug/L	279210	10	05/17/2019 19:48		YH	
Fluoranthene	BRL	72	700	ug/L	279210	10	05/17/2019 19:48		YH	
Fluorene	BRL	86	700	ug/L	279210	10	05/17/2019 19:48		YH	
Hexachlorobenzene	BRL	79	700	ug/L	279210	10	05/17/2019 19:48		YH	
Hexachlorobutadiene	BRL	81	700	ug/L	279210	10	05/17/2019 19:48		YH	
Hexachlorocyclopentadiene	BRL	150	700	ug/L	279210	10	05/17/2019 19:48		YH	
Hexachloroethane	BRL	93	700	ug/L	279210	10	05/17/2019 19:48		YH	
Indeno(1,2,3-cd)pyrene	BRL	87	700	ug/L	279210	10	05/17/2019 19:48		YH	
Isophorone	BRL	60	700	ug/L	279210	10	05/17/2019 19:48		YH	
N-Nitrosodi-n-propylamine	BRL	58	700	ug/L	279210	10	05/17/2019 19:48		YH	
N-Nitrosodiphenylamine	BRL	63	700	ug/L	279210	10	05/17/2019 19:48		YH	
Naphthalene	BRL	85	700	ug/L	279210	10	05/17/2019 19:48		YH	
Nitrobenzene	BRL	81	700	ug/L	279210	10	05/17/2019 19:48		YH	
Pentachlorophenol	BRL	43	1800	ug/L	279210	10	05/17/2019 19:48		YH	
Phenanthrene	BRL	60	700	ug/L	279210	10	05/17/2019 19:48		YH	
Phenol	4200	54	700	ug/L	279210	10	05/17/2019 19:48		YH	
Pyrene	BRL	58	700	ug/L	279210	10	05/17/2019 19:48		YH	
Surr: 2,4,6-Tribromophenol	21.7	S	0	47-127	%REC	279210	10	05/17/2019 19:48		YH
Surr: 2-Fluorobiphenyl	26.6	S	0	47.4-119	%REC	279210	10	05/17/2019 19:48		YH
Surr: 2-Fluorophenol	0	S	0	26.2-120	%REC	279210	10	05/17/2019 19:48		YH
Surr: 4-Terphenyl-d14	0	S	0	45-133	%REC	279210	10	05/17/2019 19:48		YH
Surr: Nitrobenzene-d5	0	S	0	41.9-121	%REC	279210	10	05/17/2019 19:48		YH
Surr: Phenol-d5	0	S	0	17.8-120	%REC	279210	10	05/17/2019 19:48		YH
TCL VOLATILE ORGANICS SW8260D										
(SW5030B)										
1,1,1-Trichloroethane	BRL	15	250	ug/L	279207	50	05/17/2019 22:28		BK	
1,1,2,2-Tetrachloroethane	BRL	17	250	ug/L	279207	50	05/17/2019 22:28		BK	
1,1,2-Trichloroethane	BRL	22	250	ug/L	279207	50	05/17/2019 22:28		BK	
1,1-Dichloroethane	BRL	21	250	ug/L	279207	50	05/17/2019 22:28		BK	
1,1-Dichloroethene	BRL	20	250	ug/L	279207	50	05/17/2019 22:28		BK	

Qualifiers: * Value exceeds maximum contaminant level

BRL Not detected at MDL

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

NC Not confirmed

E Estimated value above quantitation range

S Spike Recovery outside limits due to matrix

J Estimated value detected below Reporting Limit

> Greater than Result value

< Less than Result value

Narr See case narrative

Analytical Environmental Services, Inc

Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	HPPE-SW-01
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019 6:30:00 PM
Lab ID:	1905B96-002	Matrix:	Surface Water

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D									
1,2,4-Trichlorobenzene	BRL	20	250	ug/L	279207	50	05/17/2019 22:28		BK
1,2-Dibromo-3-chloropropane	BRL	34	250	ug/L	279207	50	05/17/2019 22:28		BK
1,2-Dibromoethane	BRL	29	250	ug/L	279207	50	05/17/2019 22:28		BK
1,2-Dichlorobenzene	BRL	22	250	ug/L	279207	50	05/17/2019 22:28		BK
1,2-Dichloroethane	BRL	19	250	ug/L	279207	50	05/17/2019 22:28		BK
1,2-Dichloropropane	BRL	17	250	ug/L	279207	50	05/17/2019 22:28		BK
1,3-Dichlorobenzene	BRL	15	250	ug/L	279207	50	05/17/2019 22:28		BK
1,4-Dichlorobenzene	BRL	16	250	ug/L	279207	50	05/17/2019 22:28		BK
2-Butanone	BRL	130	2500	ug/L	279207	50	05/17/2019 22:28		BK
2-Hexanone	BRL	34	500	ug/L	279207	50	05/17/2019 22:28		BK
4-Methyl-2-pentanone	BRL	22	500	ug/L	279207	50	05/17/2019 22:28		BK
Acetone	14000	180	2500	ug/L	279207	50	05/17/2019 22:28		BK
Benzene	BRL	19	250	ug/L	279207	50	05/17/2019 22:28		BK
Bromodichloromethane	BRL	12	250	ug/L	279207	50	05/17/2019 22:28		BK
Bromoform	BRL	9.7	250	ug/L	279207	50	05/17/2019 22:28		BK
Bromomethane	BRL	19	250	ug/L	279207	50	05/17/2019 22:28		BK
Carbon disulfide	BRL	37	250	ug/L	279207	50	05/17/2019 22:28		BK
Carbon tetrachloride	BRL	15	250	ug/L	279207	50	05/17/2019 22:28		BK
Chlorobenzene	BRL	21	250	ug/L	279207	50	05/17/2019 22:28		BK
Chloroethane	BRL	15	500	ug/L	279207	50	05/17/2019 22:28		BK
Chloroform	BRL	9.9	250	ug/L	279207	50	05/17/2019 22:28		BK
Chloromethane	BRL	11	500	ug/L	279207	50	05/17/2019 22:28		BK
cis-1,2-Dichloroethene	BRL	14	250	ug/L	279207	50	05/17/2019 22:28		BK
cis-1,3-Dichloropropene	BRL	15	250	ug/L	279207	50	05/17/2019 22:28		BK
Cyclohexane	BRL	52	250	ug/L	279207	50	05/17/2019 22:28		BK
Dibromochloromethane	BRL	22	250	ug/L	279207	50	05/17/2019 22:28		BK
Dichlorodifluoromethane	BRL	7.5	500	ug/L	279207	50	05/17/2019 22:28		BK
Ethylbenzene	BRL	13	250	ug/L	279207	50	05/17/2019 22:28		BK
Freon-113	BRL	16	500	ug/L	279207	50	05/17/2019 22:28		BK
Isopropylbenzene	BRL	21	250	ug/L	279207	50	05/17/2019 22:28		BK
m,p-Xylene	BRL	30	250	ug/L	279207	50	05/17/2019 22:28		BK
Methyl acetate	BRL	21	250	ug/L	279207	50	05/17/2019 22:28		BK
Methyl tert-butyl ether	BRL	22	250	ug/L	279207	50	05/17/2019 22:28		BK
Methylcyclohexane	BRL	20	250	ug/L	279207	50	05/17/2019 22:28		BK
Methylene chloride	BRL	59	250	ug/L	279207	50	05/17/2019 22:28		BK
o-Xylene	BRL	8.9	250	ug/L	279207	50	05/17/2019 22:28		BK
Styrene	BRL	7.7	250	ug/L	279207	50	05/17/2019 22:28		BK
Tetrachloroethene	BRL	23	250	ug/L	279207	50	05/17/2019 22:28		BK
Toluene	BRL	20	250	ug/L	279207	50	05/17/2019 22:28		BK

Qualifiers: * Value exceeds maximum contaminant level

E Estimated value above quantitation range

BRL Not detected at MDL

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

J Estimated value detected below Reporting Limit

N Analyte not NELAC certified

> Greater than Result value

B Analyte detected in the associated method blank

< Less than Result value

NC Not confirmed

Narr See case narrative

Analytical Environmental Services, Inc

Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	HPPE-SW-01
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019 6:30:00 PM
Lab ID:	1905B96-002	Matrix:	Surface Water

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D									
(SW5030B)									
trans-1,2-Dichloroethene	BRL		15	250	ug/L	279207	50	05/17/2019 22:28	BK
trans-1,3-Dichloropropene	BRL		16	250	ug/L	279207	50	05/17/2019 22:28	BK
Trichloroethene	BRL		15	250	ug/L	279207	50	05/17/2019 22:28	BK
Trichlorofluoromethane	BRL		9.0	250	ug/L	279207	50	05/17/2019 22:28	BK
Vinyl chloride	BRL		15	100	ug/L	279207	50	05/17/2019 22:28	BK
Surr: 4-Bromofluorobenzene	99.6		0	64-125	%REC	279207	50	05/17/2019 22:28	BK
Surr: Dibromofluoromethane	104		0	76.4-125	%REC	279207	50	05/17/2019 22:28	BK
Surr: Toluene-d8	98.3		0	78.3-116	%REC	279207	50	05/17/2019 22:28	BK
METALS, TOTAL SW6010D									
(SW3010A)									
Aluminum	0.646		0.0211	0.200	mg/L	279194	1	05/17/2019 12:10	AJ
Antimony	BRL		0.0072	0.0200	mg/L	279194	1	05/17/2019 12:10	AJ
Arsenic	BRL		0.0072	0.0500	mg/L	279194	1	05/17/2019 12:10	AJ
Barium	0.0899		0.0027	0.0200	mg/L	279194	1	05/17/2019 12:10	AJ
Beryllium	BRL		0.0015	0.0100	mg/L	279194	1	05/17/2019 12:10	AJ
Cadmium	BRL		0.0019	0.0050	mg/L	279194	1	05/17/2019 12:10	AJ
Calcium	661		0.356	1.00	mg/L	279194	10	05/17/2019 12:36	AJ
Chromium	BRL		0.0032	0.0100	mg/L	279194	1	05/17/2019 12:10	AJ
Cobalt	0.0199	J	0.0029	0.0200	mg/L	279194	1	05/17/2019 12:10	AJ
Copper	0.0261		0.0015	0.0100	mg/L	279194	1	05/17/2019 12:10	AJ
Iron	14.9		0.0442	0.100	mg/L	279194	1	05/17/2019 12:10	AJ
Lead	0.0066	J	0.0038	0.0100	mg/L	279194	1	05/17/2019 12:10	AJ
Magnesium	198		0.0088	0.100	mg/L	279194	1	05/17/2019 12:10	AJ
Manganese	1.11		0.0009	0.0150	mg/L	279194	1	05/17/2019 12:10	AJ
Nickel	0.0242		0.0036	0.0200	mg/L	279194	1	05/17/2019 12:10	AJ
Potassium	459		1.15	5.00	mg/L	279194	10	05/17/2019 13:25	AJ
Selenium	BRL		0.0074	0.0200	mg/L	279194	1	05/17/2019 12:10	AJ
Silver	BRL		0.0026	0.0100	mg/L	279194	1	05/17/2019 12:10	AJ
Sodium	217		1.09	10.0	mg/L	279194	10	05/17/2019 12:36	AJ
Thallium	0.0229		0.0088	0.0200	mg/L	279194	1	05/17/2019 12:10	AJ
Vanadium	0.0056	J	0.0012	0.0100	mg/L	279194	1	05/17/2019 12:10	AJ
Zinc	0.942		0.0073	0.0200	mg/L	279194	1	05/17/2019 12:10	AJ
Mercury, Total SW7470A									
(SW7470A)									
Mercury	0.00106	J	0.00048	0.00160	mg/L	279253	1	05/17/2019 17:39	EH

Qualifiers: * Value exceeds maximum contaminant level

E Estimated value above quantitation range

BRL Not detected at MDL

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

J Estimated value detected below Reporting Limit

N Analyte not NELAC certified

> Greater than Result value

B Analyte detected in the associated method blank

< Less than Result value

NC Not confirmed

Narr See case narrative

Analytical Environmental Services, Inc

Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	HPPE-SS-01
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019 6:40:00 PM
Lab ID:	1905B96-003	Matrix:	Soil

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TOTAL MERCURY SW7471B									
(SW7471B)									
Mercury	0.0160	J	0.0124	0.129	mg/Kg-dry	279182	1	05/16/2019 16:47	EH
TCL-SEMOVOLATILE ORGANICS SW8270E									
(SW3550C)									
1,1'-Biphenyl	BRL	40	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2,4,5-Trichlorophenol	BRL	82	2300	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2,4,6-Trichlorophenol	BRL	73	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2,4-Dichlorophenol	BRL	60	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2,4-Dimethylphenol	BRL	65	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2,4-Dinitrophenol	BRL	190	2300	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2,4-Dinitrotoluene	BRL	67	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2,6-Dinitrotoluene	BRL	40	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2-Chloronaphthalene	BRL	53	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2-Chlorophenol	BRL	46	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2-Methylnaphthalene	BRL	42	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2-Methylphenol	BRL	57	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2-Nitroaniline	BRL	84	2300	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
2-Nitrophenol	BRL	31	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
3,3'-Dichlorobenzidine	BRL	230	900	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
3-Nitroaniline	BRL	80	2300	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
4,6-Dinitro-2-methylphenol	BRL	55	2300	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
4-Bromophenyl phenyl ether	BRL	55	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
4-Chloro-3-methylphenol	BRL	44	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
4-Chloroaniline	BRL	120	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
4-Chlorophenyl phenyl ether	BRL	61	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
4-Methylphenol	BRL	74	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
4-Nitroaniline	BRL	80	2300	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
4-Nitrophenol	BRL	56	2300	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
Acenaphthene	BRL	46	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
Acenaphthylene	BRL	41	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
Acetophenone	BRL	94	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
Anthracene	BRL	45	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
Atrazine	BRL	44	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
Benz(a)anthracene	BRL	210	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
Benzaldehyde	BRL	96	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
Benzo(a)pyrene	BRL	240	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
Benzo(b)fluoranthene	BRL	220	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
Benzo(g,h,i)perylene	BRL	220	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
Benzo(k)fluoranthene	BRL	250	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	
Bis(2-chloroethoxy)methane	BRL	54	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH	

Qualifiers: * Value exceeds maximum contaminant level

E Estimated value above quantitation range

BRL Not detected at MDL

S Spike Recovery outside limits due to matrix

H Holding times for preparation or analysis exceeded

J Estimated value detected below Reporting Limit

N Analyte not NELAC certified

> Greater than Result value

B Analyte detected in the associated method blank

< Less than Result value

NC Not confirmed

Narr See case narrative

Analytical Environmental Services, Inc
Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	HPPE-SS-01
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019 6:40:00 PM
Lab ID:	1905B96-003	Matrix:	Soil

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL-SEMITRIVOLATILE ORGANICS SW8270E									
(SW3550C)									
Bis(2-chloroethyl)ether	BRL		44	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Bis(2-chloroisopropyl)ether	BRL		44	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Bis(2-ethylhexyl)phthalate	BRL		220	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Butyl benzyl phthalate	BRL		190	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Caprolactam	420	J	69	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Carbazole	BRL		50	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Chrysene	BRL		250	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Di-n-butyl phthalate	BRL		60	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Di-n-octyl phthalate	BRL		160	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Dibenz(a,h)anthracene	BRL		240	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Dibenzofuran	BRL		47	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Diethyl phthalate	BRL		54	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Dimethyl phthalate	BRL		57	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Fluoranthene	BRL		52	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Fluorene	BRL		39	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Hexachlorobenzene	BRL		54	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Hexachlorobutadiene	BRL		74	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Hexachlorocyclopentadiene	BRL		43	890	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Hexachloroethane	BRL		52	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Indeno(1,2,3-cd)pyrene	BRL		240	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Isophorone	BRL		43	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
N-Nitrosodi-n-propylamine	BRL		31	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
N-Nitrosodiphenylamine	BRL		45	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Naphthalene	BRL		53	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Nitrobenzene	BRL		54	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Pentachlorophenol	BRL		53	2300	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Phenanthrene	BRL		42	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Phenol	BRL		34	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Pyrene	BRL		220	440	ug/Kg-dry	279180	1	05/16/2019 23:16	YH
Surr: 2,4,6-Tribromophenol	18.6	S	0	45.6-120	%REC	279180	1	05/16/2019 23:16	YH
Surr: 2-Fluorobiphenyl	19.1	S	0	51.4-120	%REC	279180	1	05/16/2019 23:16	YH
Surr: 2-Fluorophenol	12.7	S	0	40.9-120	%REC	279180	1	05/16/2019 23:16	YH
Surr: 4-Terphenyl-d14	19.7	S	0	52.2-129	%REC	279180	1	05/16/2019 23:16	YH
Surr: Nitrobenzene-d5	19.1	S	0	40-120	%REC	279180	1	05/16/2019 23:16	YH
Surr: Phenol-d5	13.5	S	0	45-120	%REC	279180	1	05/16/2019 23:16	YH
TCL VOLATILE ORGANICS SW8260D									
(SW5035)									
1,1,1-Trichloroethane	BRL		1.7	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
1,1,2,2-Tetrachloroethane	BRL		2.0	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR

Qualifiers: * Value exceeds maximum contaminant level

BRL Not detected at MDL

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

NC Not confirmed

E Estimated value above quantitation range

S Spike Recovery outside limits due to matrix

J Estimated value detected below Reporting Limit

> Greater than Result value

< Less than Result value

Narr See case narrative

Analytical Environmental Services, Inc
Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	HPPE-SS-01
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019 6:40:00 PM
Lab ID:	1905B96-003	Matrix:	Soil

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D (SW5035)									
1,1,2-Trichloroethane	BRL		2.0	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
1,1-Dichloroethane	BRL		1.8	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
1,1-Dichloroethene	BRL		1.3	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
1,2,4-Trichlorobenzene	3.6	J	2.5	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
1,2-Dibromo-3-chloropropane	BRL		2.7	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
1,2-Dibromoethane	BRL		2.0	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
1,2-Dichlorobenzene	BRL		2.1	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
1,2-Dichloroethane	BRL		2.0	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
1,2-Dichloropropane	BRL		1.9	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
1,3-Dichlorobenzene	BRL		1.6	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
1,4-Dichlorobenzene	BRL		2.3	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
2-Butanone	85		7.9	64	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
2-Hexanone	5.1	J	4.9	13	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
4-Methyl-2-pentanone	BRL		3.3	13	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Acetone	16000		680	13000	ug/Kg-dry	279284	100	05/17/2019 19:09	NP
Benzene	BRL		0.76	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Bromodichloromethane	BRL		1.7	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Bromoform	BRL		1.7	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Bromomethane	BRL		2.8	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Carbon disulfide	BRL		3.5	13	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Carbon tetrachloride	BRL		1.7	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Chlorobenzene	BRL		1.9	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Chloroethane	BRL		3.4	13	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Chloroform	3.3	J	1.5	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Chloromethane	3.2	J	2.4	13	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
cis-1,2-Dichloroethene	BRL		2.3	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
cis-1,3-Dichloropropene	BRL		2.3	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Cyclohexane	BRL		1.4	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Dibromochloromethane	BRL		1.7	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Dichlorodifluoromethane	BRL		1.9	13	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Ethylbenzene	1.3	J	0.64	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Freon-113	BRL		1.7	13	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Isopropylbenzene	BRL		1.8	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
m,p-Xylene	4.3	J	1.2	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Methyl acetate	BRL		3.3	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Methyl tert-butyl ether	BRL		1.5	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Methylcyclohexane	BRL		2.0	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Methylene chloride	6.5	J	6.4	25	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
o-Xylene	1.8	J	0.66	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR

Qualifiers: * Value exceeds maximum contaminant level

BRL Not detected at MDL

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

NC Not confirmed

E Estimated value above quantitation range

S Spike Recovery outside limits due to matrix

J Estimated value detected below Reporting Limit

> Greater than Result value

< Less than Result value

Narr See case narrative

Analytical Environmental Services, Inc
Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	HPPE-SS-01
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019 6:40:00 PM
Lab ID:	1905B96-003	Matrix:	Soil

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D (SW5035)									
Styrene	BRL		1.7	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Tetrachloroethene	BRL		1.9	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Toluene	1.7	J	0.68	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
trans-1,2-Dichloroethene	BRL		2.2	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
trans-1,3-Dichloropropene	BRL		1.6	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Trichloroethene	BRL		1.8	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Trichlorofluoromethane	BRL		3.0	6.4	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Vinyl chloride	BRL		2.7	13	ug/Kg-dry	279288	1	05/16/2019 22:02	AR
Surr: 4-Bromofluorobenzene	74.1	0	65.1-125	%REC		279288	1	05/16/2019 22:02	AR
Surr: 4-Bromofluorobenzene	84.1	0	65.1-125	%REC		279284	100	05/17/2019 19:09	NP
Surr: Dibromofluoromethane	87.5	0	77.7-123	%REC		279284	100	05/17/2019 19:09	NP
Surr: Dibromofluoromethane	110	0	77.7-123	%REC		279288	1	05/16/2019 22:02	AR
Surr: Toluene-d8	88.3	0	83.2-120	%REC		279284	100	05/17/2019 19:09	NP
Surr: Toluene-d8	94.7	0	83.2-120	%REC		279288	1	05/16/2019 22:02	AR
METALS, TOTAL SW6010D (SW3050B)									
Aluminum	3030		1.23	56.1	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Antimony	1.49	J	0.839	2.80	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Arsenic	0.785	J	0.462	2.80	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Barium	73.4		0.179	5.61	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Beryllium	0.228	J	0.147	2.80	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Cadmium	0.382	J	0.0559	2.80	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Calcium	10800		2.48	56.1	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Chromium	12.0		0.492	2.80	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Cobalt	3.47		0.139	2.80	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Copper	1480		1.30	28.0	mg/Kg-dry	279066	10	05/16/2019 13:36	AJ
Iron	7650		12.5	561	mg/Kg-dry	279066	10	05/16/2019 13:36	AJ
Lead	3.55	J	0.210	5.61	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Magnesium	2300		1.57	56.1	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Manganese	94.8		0.0441	5.61	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Nickel	11.7		0.242	5.61	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Potassium	2010		7.95	112	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Selenium	BRL		0.850	3.93	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Silver	0.0796	J	0.0144	2.80	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Sodium	626		7.53	112	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Thallium	0.905	J	0.455	1.12	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Vanadium	11.0		0.0716	5.61	mg/Kg-dry	279066	1	05/15/2019 16:35	AJ
Zinc	737		3.34	56.1	mg/Kg-dry	279066	10	05/16/2019 13:36	AJ

Qualifiers: * Value exceeds maximum contaminant level

BRL Not detected at MDL

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

NC Not confirmed

E Estimated value above quantitation range

S Spike Recovery outside limits due to matrix

J Estimated value detected below Reporting Limit

> Greater than Result value

< Less than Result value

Narr See case narrative

Analytical Environmental Services, Inc**Date:** 21-May-19

Client: Tetra Tech EM Inc.	Client Sample ID: HPPE-SS-01
Project Name: HPPE Columbus GA Fish Kill	Collection Date: 5/12/2019 6:40:00 PM
Lab ID: 1905B96-003	Matrix: Soil

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
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PERCENT MOISTURE D2216

Percent Moisture	25.8	0	0	wt%	R398150	1	05/15/2019 13:00	JW
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Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc
Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	TRIP BLANK
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019
Lab ID:	1905B96-004	Matrix:	Aqueous

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D									
(SW5030B)									
1,1,1-Trichloroethane	BRL	0.30	5.0	ug/L	279207	1	05/17/2019 21:34		BK
1,1,2,2-Tetrachloroethane	BRL	0.34	5.0	ug/L	279207	1	05/17/2019 21:34		BK
1,1,2-Trichloroethane	BRL	0.43	5.0	ug/L	279207	1	05/17/2019 21:34		BK
1,1-Dichloroethane	BRL	0.43	5.0	ug/L	279207	1	05/17/2019 21:34		BK
1,1-Dichloroethene	BRL	0.40	5.0	ug/L	279207	1	05/17/2019 21:34		BK
1,2,4-Trichlorobenzene	BRL	0.39	5.0	ug/L	279207	1	05/17/2019 21:34		BK
1,2-Dibromo-3-chloropropane	BRL	0.68	5.0	ug/L	279207	1	05/17/2019 21:34		BK
1,2-Dibromoethane	BRL	0.57	5.0	ug/L	279207	1	05/17/2019 21:34		BK
1,2-Dichlorobenzene	BRL	0.45	5.0	ug/L	279207	1	05/17/2019 21:34		BK
1,2-Dichloroethane	BRL	0.37	5.0	ug/L	279207	1	05/17/2019 21:34		BK
1,2-Dichloropropane	BRL	0.35	5.0	ug/L	279207	1	05/17/2019 21:34		BK
1,3-Dichlorobenzene	BRL	0.31	5.0	ug/L	279207	1	05/17/2019 21:34		BK
1,4-Dichlorobenzene	BRL	0.33	5.0	ug/L	279207	1	05/17/2019 21:34		BK
2-Butanone	BRL	2.5	50	ug/L	279207	1	05/17/2019 21:34		BK
2-Hexanone	BRL	0.67	10	ug/L	279207	1	05/17/2019 21:34		BK
4-Methyl-2-pentanone	BRL	0.44	10	ug/L	279207	1	05/17/2019 21:34		BK
Acetone	BRL	3.6	50	ug/L	279207	1	05/17/2019 21:34		BK
Benzene	BRL	0.37	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Bromodichloromethane	BRL	0.25	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Bromoform	BRL	0.19	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Bromomethane	BRL	0.39	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Carbon disulfide	BRL	0.74	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Carbon tetrachloride	BRL	0.29	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Chlorobenzene	BRL	0.42	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Chloroethane	BRL	0.31	10	ug/L	279207	1	05/17/2019 21:34		BK
Chloroform	BRL	0.20	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Chloromethane	BRL	0.21	10	ug/L	279207	1	05/17/2019 21:34		BK
cis-1,2-Dichloroethene	BRL	0.28	5.0	ug/L	279207	1	05/17/2019 21:34		BK
cis-1,3-Dichloropropene	BRL	0.31	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Cyclohexane	BRL	1.0	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Dibromochloromethane	BRL	0.43	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Dichlorodifluoromethane	BRL	0.15	10	ug/L	279207	1	05/17/2019 21:34		BK
Ethylbenzene	BRL	0.26	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Freon-113	BRL	0.32	10	ug/L	279207	1	05/17/2019 21:34		BK
Isopropylbenzene	BRL	0.43	5.0	ug/L	279207	1	05/17/2019 21:34		BK
m,p-Xylene	BRL	0.60	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Methyl acetate	BRL	0.42	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Methyl tert-butyl ether	BRL	0.45	5.0	ug/L	279207	1	05/17/2019 21:34		BK
Methylcyclohexane	BRL	0.39	5.0	ug/L	279207	1	05/17/2019 21:34		BK

Qualifiers: * Value exceeds maximum contaminant level

BRL Not detected at MDL

H Holding times for preparation or analysis exceeded

N Analyte not NELAC certified

B Analyte detected in the associated method blank

NC Not confirmed

E Estimated value above quantitation range

S Spike Recovery outside limits due to matrix

J Estimated value detected below Reporting Limit

> Greater than Result value

< Less than Result value

Narr See case narrative

Analytical Environmental Services, Inc
Date: 21-May-19

Client:	Tetra Tech EM Inc.	Client Sample ID:	TRIP BLANK
Project Name:	HPPE Columbus GA Fish Kill	Collection Date:	5/12/2019
Lab ID:	1905B96-004	Matrix:	Aqueous

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260D									
(SW5030B)									
Methylene chloride	BRL		1.2	5.0	ug/L	279207	1	05/17/2019 21:34	BK
o-Xylene	BRL		0.18	5.0	ug/L	279207	1	05/17/2019 21:34	BK
Styrene	BRL		0.15	5.0	ug/L	279207	1	05/17/2019 21:34	BK
Tetrachloroethene	BRL		0.46	5.0	ug/L	279207	1	05/17/2019 21:34	BK
Toluene	BRL		0.39	5.0	ug/L	279207	1	05/17/2019 21:34	BK
trans-1,2-Dichloroethene	BRL		0.30	5.0	ug/L	279207	1	05/17/2019 21:34	BK
trans-1,3-Dichloropropene	BRL		0.32	5.0	ug/L	279207	1	05/17/2019 21:34	BK
Trichloroethene	BRL		0.30	5.0	ug/L	279207	1	05/17/2019 21:34	BK
Trichlorofluoromethane	BRL		0.18	5.0	ug/L	279207	1	05/17/2019 21:34	BK
Vinyl chloride	BRL		0.30	2.0	ug/L	279207	1	05/17/2019 21:34	BK
Surr: 4-Bromofluorobenzene	92.5		0	64-125	%REC	279207	1	05/17/2019 21:34	BK
Surr: Dibromofluoromethane	105		0	76.4-125	%REC	279207	1	05/17/2019 21:34	BK
Surr: Toluene-d8	98.2		0	78.3-116	%REC	279207	1	05/17/2019 21:34	BK

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

SAMPLE/COOLER RECEIPT CHECKLIST

1. Client Name: **Tetra Tech EM Inc.**

AES Work Order Number: **1905B96**

2. Carrier: FedEx UPS USPS Client Courier Other _____

	Yes	No	N/A	Details	Comments
3. Shipping container/cooler received in good condition?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	damaged <input type="checkbox"/> leaking <input type="checkbox"/> other <input type="checkbox"/>	
4. Custody seals present on shipping container?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
5. Custody seals intact on shipping container?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
6. Temperature blanks present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
7. Cooler temperature(s) within limits of 0-6°C? [See item 13 and 14 for temperature recordings.]	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cooling initiated for recently collected samples / ice present <input type="checkbox"/>	
8. Chain of Custody (COC) present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
9. Chain of Custody signed, dated, and timed when relinquished and received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
10. Sampler name and/or signature on COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
11. Were all samples received within holding time?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
12. TAT marked on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	If no TAT indicated, proceeded with standard TAT per Terms & Conditions. <input type="checkbox"/>	

13. Cooler 1 Temperature 0.6 °C Cooler 2 Temperature _____ °C Cooler 3 Temperature _____ °C Cooler 4 Temperature _____ °C

14. Cooler 5 Temperature _____ °C Cooler 6 Temperature _____ °C Cooler 7 Temperature _____ °C Cooler 8 Temperature _____ °C

15. Comments: _____

I certify that I have completed sections 1-15 (dated initials).

MJ 5/13/19

	Yes	No	N/A	Details	Comments
16. Were sample containers intact upon receipt?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
17. Custody seals present on sample containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
18. Custody seals intact on sample containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
19. Do sample container labels match the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	incomplete info <input type="checkbox"/> illegible <input type="checkbox"/> no label <input type="checkbox"/> other <input type="checkbox"/>	
20. Are analyses requested indicated on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
21. Were all of the samples listed on the COC received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	samples received but not listed on COC <input type="checkbox"/> samples listed on COC not received <input type="checkbox"/>	
22. Was the sample collection date/time noted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
23. Did we receive sufficient sample volume for indicated analyses?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
24. Were samples received in appropriate containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
25. Were VOA samples received without headspace (< 1/4" bubble)?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
26. Were trip blanks submitted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	listed on COC <input type="checkbox"/> not listed on COC <input checked="" type="checkbox"/>	

27. Comments: _____

This section only applies to samples where pH can be checked at Sample Receipt

I certify that I have completed sections 16-27 (dated initials).

BC 5/14/19

	Yes	No	N/A	Details	Comments
28. Have containers needing chemical preservation been checked? *	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
29. Containers meet preservation guidelines?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
30. Was pH adjusted at Sample Receipt?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		

* Note: Certain analyses require chemical preservation but must be checked in the laboratory and not upon Sample Receipt such as Coliforms, VOCs and Oil & Grease/TPH.

I certify that I have completed sections 28-30 (dated initials).

BC 5/14/19

pH Adjustment Sheet

AES Sample ID number	Test Requested	pH as Received	Required pH	Preservative Required	Lot # of Preservative	Amount Added mL or Pellets*	Final pH	Tech's Initials	Date	Time
1905B96-001C	60108/7470	4	1	HNO ₃	MET 83890	2.0 mL Pellets	3	BC	5-14	1057
1905B96-001C	60108/7470	3	1	HNO ₃	MET 83890	2.0 mL Pellets	1	BC	5-14	1057
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
						mL Pellets				
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						mL Pellets				
						mL Pellets				

* Number of Pellets when adding NAOH

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT
BatchID: 279066

Sample ID: MB-279066	Client ID:				Units: mg/Kg	Prep Date: 05/15/2019	Run No: 398282				
SampleType: MBLK	TestCode: METALS, TOTAL	SW6010D			BatchID: 279066	Analysis Date: 05/15/2019	Seq No: 8925393				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	10.24	50.0									J
Antimony	BRL	2.50									
Arsenic	BRL	2.50									
Barium	BRL	5.00									
Beryllium	BRL	2.50									
Cadmium	BRL	2.50									
Calcium	3.372	50.0									J
Chromium	BRL	2.50									
Cobalt	BRL	2.50									
Copper	BRL	2.50									
Iron	8.165	50.0									J
Lead	BRL	5.00									
Magnesium	BRL	50.0									
Manganese	0.1645	5.00									J
Nickel	BRL	5.00									
Potassium	BRL	100									
Selenium	BRL	3.50									
Silver	BRL	2.50									
Sodium	BRL	100									
Thallium	BRL	1.00									
Vanadium	BRL	5.00									
Zinc	BRL	5.00									

Sample ID: LCS-279066	Client ID:				Units: mg/Kg	Prep Date: 05/15/2019	Run No: 398282				
SampleType: LCS	TestCode: METALS, TOTAL	SW6010D			BatchID: 279066	Analysis Date: 05/15/2019	Seq No: 8925394				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Qualifiers:	>	Greater than Result value	<	Less than Result value		B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)		H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified		R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix			

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279066**

Sample ID: LCS-279066	Client ID:				Units: mg/Kg	Prep Date: 05/15/2019	Run No: 398282				
SampleType: LCS	TestCode: METALS, TOTAL	SW6010D			BatchID: 279066	Analysis Date: 05/15/2019	Seq No: 8925394				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	472.6	50.0	500.0	10.24	92.5	80	120				
Antimony	45.24	2.50	50.00		90.5	80	120				
Arsenic	46.95	2.50	50.00		93.9	80	120				
Barium	49.82	5.00	50.00		99.6	80	120				
Beryllium	48.16	2.50	50.00		96.3	80	120				
Cadmium	45.61	2.50	50.00		91.2	80	120				
Calcium	501.7	50.0	500.0	3.372	99.7	80	120				
Chromium	49.59	2.50	50.00		99.2	80	120				
Cobalt	49.51	2.50	50.00		99.0	80	120				
Copper	47.09	2.50	50.00		94.2	80	120				
Iron	493.6	50.0	500.0	8.165	97.1	80	120				
Lead	47.80	5.00	50.00		95.6	80	120				
Magnesium	476.5	50.0	500.0		95.3	80	120				
Manganese	49.37	5.00	50.00	0.1645	98.4	80	120				
Nickel	49.05	5.00	50.00		98.1	80	120				
Potassium	453.0	100	500.0		90.6	80	120				
Selenium	42.39	3.50	50.00		84.8	80	120				
Silver	4.574	2.50	5.000		91.5	80	120				
Sodium	498.4	100	500.0		99.7	80	120				
Thallium	46.73	1.00	50.00		93.5	80	120				
Vanadium	50.10	5.00	50.00		100	80	120				
Zinc	48.32	5.00	50.00		96.6	80	120				

Sample ID: 1905C07-001AMS	Client ID:				Units: mg/Kg-dry	Prep Date: 05/15/2019	Run No: 398282				
SampleType: MS	TestCode: METALS, TOTAL	SW6010D			BatchID: 279066	Analysis Date: 05/15/2019	Seq No: 8925398				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Antimony	16.58	2.39	47.79	0.8857	32.9	75	125				S
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Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279066**

Sample ID: 1905C07-001AMS	Client ID:				Units: mg/Kg-dry	Prep Date:	05/15/2019	Run No: 398282
SampleType: MS	TestCode:	METALS, TOTAL	SW6010D			BatchID: 279066	Analysis Date: 05/15/2019	Seq No: 8925398
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val %RPD RPD Limit Qual
Arsenic	41.79	2.39	47.79	1.589	84.1	75	125	
Barium	112.3	4.78	47.79	68.99	90.7	75	125	
Beryllium	42.09	2.39	47.79	0.4516	87.1	75	125	
Cadmium	41.60	2.39	47.79	0.1980	86.6	75	125	
Calcium	5215	47.8	477.9	4532	143	75	125	S
Chromium	72.26	2.39	47.79	33.96	80.1	75	125	
Cobalt	49.14	2.39	47.79	8.505	85.0	75	125	
Copper	70.86	2.39	47.79	27.08	91.6	75	125	
Lead	87.21	4.78	47.79	46.08	86.1	75	125	
Magnesium	2956	47.8	477.9	2480	99.6	75	125	
Manganese	298.1	4.78	47.79	249.9	101	75	125	
Nickel	52.68	4.78	47.79	10.68	87.9	75	125	
Potassium	2787	95.6	477.9	2294	103	75	125	
Selenium	34.49	3.35	47.79		72.2	75	125	S
Silver	4.292	2.39	4.779	0.07043	88.3	75	125	
Sodium	527.2	95.6	477.9	37.70	102	75	125	
Thallium	40.77	0.956	47.79		85.3	75	125	
Vanadium	117.3	4.78	47.79	76.95	84.5	75	125	
Zinc	109.0	4.78	47.79	68.54	84.7	75	125	

Sample ID: 1905C07-001AMS	Client ID:				Units: mg/Kg-dry	Prep Date:	05/15/2019	Run No: 398282
SampleType: MS	TestCode:	METALS, TOTAL	SW6010D			BatchID: 279066	Analysis Date: 05/16/2019	Seq No: 8925493
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val %RPD RPD Limit Qual
Aluminum	22840	478	477.9	16560	1310	75	125	S
Iron	28840	478	477.9	13220	3270	75	125	S

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279066**

Sample ID: 1905C07-001AMSD		Client ID: METALS, TOTAL		Units: mg/Kg-dry		Prep Date: 05/15/2019		Run No: 398282			
SampleType: MSD		TestCode: SW6010D		BatchID: 279066		Analysis Date: 05/15/2019		Seq No: 8925400			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	16.93	2.39	47.85	0.8857	33.5	75	125	16.58	2.04	20	S
Arsenic	41.98	2.39	47.85	1.589	84.4	75	125	41.79	0.462	20	
Barium	111.2	4.78	47.85	68.99	88.2	75	125	112.3	1.00	20	
Beryllium	42.51	2.39	47.85	0.4516	87.9	75	125	42.09	0.990	20	
Cadmium	42.04	2.39	47.85	0.1980	87.4	75	125	41.60	1.03	20	
Calcium	4998	47.8	478.5	4532	97.4	75	125	5215	4.26	20	
Chromium	74.09	2.39	47.85	33.96	83.9	75	125	72.26	2.50	20	
Cobalt	49.44	2.39	47.85	8.505	85.6	75	125	49.14	0.614	20	
Copper	71.58	2.39	47.85	27.08	93.0	75	125	70.86	1.00	20	
Lead	88.99	4.78	47.85	46.08	89.7	75	125	87.21	2.02	20	
Magnesium	2864	47.8	478.5	2480	80.2	75	125	2956	3.16	20	
Manganese	285.6	4.78	47.85	249.9	74.7	75	125	298.1	4.26	20	S
Nickel	52.68	4.78	47.85	10.68	87.8	75	125	52.68	0.006	20	
Potassium	2716	95.7	478.5	2294	88.2	75	125	2787	2.60	20	
Selenium	34.94	3.35	47.85		73.0	75	125	34.49	1.29	20	S
Silver	4.202	2.39	4.785	0.07043	86.4	75	125	4.292	2.11	20	
Sodium	525.0	95.7	478.5	37.70	102	75	125	527.2	0.416	20	
Thallium	40.80	0.957	47.85		85.3	75	125	40.77	0.069	20	
Vanadium	120.7	4.78	47.85	76.95	91.4	75	125	117.3	2.81	20	
Zinc	109.1	4.78	47.85	68.54	84.8	75	125	109.0	0.085	20	

Sample ID: 1905C07-001AMSD		Client ID: METALS, TOTAL		Units: mg/Kg-dry		Prep Date: 05/15/2019		Run No: 398282			
SampleType: MSD		TestCode: SW6010D		BatchID: 279066		Analysis Date: 05/16/2019		Seq No: 8925494			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	23060	478	478.5	16560	1360	75	125	19520	16.6	20	S
Iron	29660	478	478.5	13220	3440	75	125	13110	77.4	20	SR

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279182**

Sample ID: MB-279182	Client ID:				Units: mg/Kg	Prep Date: 05/16/2019	Run No: 398302				
SampleType: MBLK	TestCode: TOTAL MERCURY SW7471B				BatchID: 279182	Analysis Date: 05/16/2019	Seq No: 8925777				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	BRL	0.100									
Sample ID: LCS-279182	Client ID:				Units: mg/Kg	Prep Date: 05/16/2019	Run No: 398302				
SampleType: LCS	TestCode: TOTAL MERCURY SW7471B				BatchID: 279182	Analysis Date: 05/16/2019	Seq No: 8925778				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.3965	0.100	0.4000		99.1	80	120				
Sample ID: 1905D19-007AMS	Client ID:				Units: mg/Kg-dry	Prep Date: 05/16/2019	Run No: 398302				
SampleType: MS	TestCode: TOTAL MERCURY SW7471B				BatchID: 279182	Analysis Date: 05/16/2019	Seq No: 8925780				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.4774	0.121	0.4843		98.6	80	120				
Sample ID: 1905D19-007AMSD	Client ID:				Units: mg/Kg-dry	Prep Date: 05/16/2019	Run No: 398302				
SampleType: MSD	TestCode: TOTAL MERCURY SW7471B				BatchID: 279182	Analysis Date: 05/16/2019	Seq No: 8925781				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.4590	0.117	0.4697		97.7	80	120	0.4774	3.93	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279194**

Sample ID: MB-279194	Client ID:				Units: mg/L	Prep Date: 05/16/2019	Run No: 398374				
SampleType: MBLK	TestCode: METALS, TOTAL SW6010D				BatchID: 279194	Analysis Date: 05/17/2019	Seq No: 8927123				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	0.03293	0.200									J
Antimony	BRL	0.0200									
Arsenic	BRL	0.0500									
Barium	BRL	0.0200									
Beryllium	BRL	0.0100									
Cadmium	BRL	0.0050									
Calcium	BRL	0.100									
Chromium	BRL	0.0100									
Cobalt	BRL	0.0200									
Copper	BRL	0.0100									
Iron	BRL	0.100									
Lead	BRL	0.0100									
Magnesium	BRL	0.100									
Manganese	BRL	0.0150									
Nickel	BRL	0.0200									
Potassium	BRL	0.500									
Selenium	BRL	0.0200									
Silver	BRL	0.0100									
Sodium	BRL	1.00									
Thallium	BRL	0.0200									
Vanadium	BRL	0.0100									
Zinc	BRL	0.0200									

Sample ID: LCS-279194	Client ID:				Units: mg/L	Prep Date: 05/16/2019	Run No: 398374				
SampleType: LCS	TestCode: METALS, TOTAL SW6010D				BatchID: 279194	Analysis Date: 05/17/2019	Seq No: 8927126				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Aluminum	10.30	0.200	10.00	0.03293	103	80	120				
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Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279194**

Sample ID: LCS-279194	Client ID:				Units: mg/L	Prep Date: 05/16/2019	Run No: 398374				
SampleType: LCS	TestCode: METALS, TOTAL SW6010D				BatchID: 279194	Analysis Date: 05/17/2019	Seq No: 8927126				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Antimony	1.070	0.0200	1.000		107	80	120				
Arsenic	0.9805	0.0500	1.000		98.0	80	120				
Barium	1.030	0.0200	1.000		103	80	120				
Beryllium	0.9892	0.0100	1.000		98.9	80	120				
Cadmium	0.9746	0.0050	1.000		97.5	80	120				
Calcium	10.16	0.100	10.00		102	80	120				
Chromium	1.015	0.0100	1.000		101	80	120				
Cobalt	1.015	0.0200	1.000		102	80	120				
Copper	0.9925	0.0100	1.000		99.2	80	120				
Iron	10.08	0.100	10.00		101	80	120				
Lead	0.9936	0.0100	1.000		99.4	80	120				
Magnesium	9.890	0.100	10.00		98.9	80	120				
Manganese	1.021	0.0150	1.000		102	80	120				
Nickel	0.9961	0.0200	1.000		99.6	80	120				
Potassium	10.55	0.500	10.00		106	80	120				
Selenium	0.9649	0.0200	1.000		96.5	80	120				
Silver	0.1020	0.0100	0.1000		102	80	120				
Sodium	10.47	1.00	10.00		105	80	120				
Thallium	1.029	0.0200	1.000		103	80	120				
Vanadium	1.034	0.0100	1.000		103	80	120				
Zinc	0.9479	0.0200	1.000		94.8	80	120				

Sample ID: 1905E55-005FMS	Client ID:				Units: mg/L	Prep Date: 05/16/2019	Run No: 398374				
SampleType: MS	TestCode: METALS, TOTAL SW6010D				BatchID: 279194	Analysis Date: 05/17/2019	Seq No: 8927128				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	10.55	0.200	10.00	0.1154	104	75	125				
Antimony	1.079	0.0200	1.000		108	75	125				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL		Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J		Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim		Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279194**

Sample ID: 1905E55-005FMS	Client ID:				Units: mg/L	Prep Date: 05/16/2019	Run No: 398374				
SampleType: MS	TestCode: METALS, TOTAL SW6010D				BatchID: 279194	Analysis Date: 05/17/2019	Seq No: 8927128				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Arsenic	0.9848	0.0500	1.000		98.5	75	125				
Barium	1.065	0.0200	1.000	0.02195	104	75	125				
Beryllium	0.9970	0.0100	1.000		99.7	75	125				
Cadmium	0.9845	0.0050	1.000		98.5	75	125				
Calcium	10.86	0.100	10.00	0.5584	103	75	125				
Chromium	1.026	0.0100	1.000		103	75	125				
Cobalt	1.029	0.0200	1.000		103	75	125				
Copper	1.006	0.0100	1.000		101	75	125				
Iron	11.59	0.100	10.00	1.491	101	75	125				
Lead	0.9994	0.0100	1.000		99.9	75	125				
Magnesium	10.43	0.100	10.00	0.4585	99.8	75	125				
Manganese	1.884	0.0150	1.000	0.9016	98.2	75	125				
Nickel	1.009	0.0200	1.000		101	75	125				
Potassium	11.83	0.500	10.00	1.052	108	75	125				
Selenium	0.9761	0.0200	1.000		97.6	75	125				
Silver	0.1028	0.0100	0.1000		103	75	125				
Sodium	12.87	1.00	10.00	2.328	105	75	125				
Thallium	1.047	0.0200	1.000		105	75	125				
Vanadium	1.045	0.0100	1.000		104	75	125				
Zinc	0.9565	0.0200	1.000		95.7	75	125				

Sample ID: 1905E55-005FMSD	Client ID:				Units: mg/L	Prep Date: 05/16/2019	Run No: 398374				
SampleType: MSD	TestCode: METALS, TOTAL SW6010D				BatchID: 279194	Analysis Date: 05/17/2019	Seq No: 8927129				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Aluminum	10.54	0.200	10.00	0.1154	104	75	125	10.55	0.132	20	
Antimony	1.078	0.0200	1.000		108	75	125	1.079	0.126	20	
Arsenic	1.002	0.0500	1.000		100	75	125	0.9848	1.78	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279194**

Sample ID: 1905E55-005FMSD		Client ID: SampleType: MSD TestCode: METALS, TOTAL SW6010D		Units: mg/L		Prep Date: 05/16/2019		Run No: 398374			
				BatchID: 279194		Analysis Date: 05/17/2019		Seq No: 8927129			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Barium	1.064	0.0200	1.000	0.02195	104	75	125	1.065	0.079	20	
Beryllium	1.001	0.0100	1.000		100	75	125	0.9970	0.382	20	
Cadmium	0.9844	0.0050	1.000		98.4	75	125	0.9845	0.010	20	
Calcium	10.84	0.100	10.00	0.5584	103	75	125	10.86	0.107	20	
Chromium	1.024	0.0100	1.000		102	75	125	1.026	0.157	20	
Cobalt	1.028	0.0200	1.000		103	75	125	1.029	0.015	20	
Copper	1.006	0.0100	1.000		101	75	125	1.006	0.070	20	
Iron	11.57	0.100	10.00	1.491	101	75	125	11.59	0.169	20	
Lead	1.003	0.0100	1.000		100	75	125	0.9994	0.338	20	
Magnesium	10.43	0.100	10.00	0.4585	99.7	75	125	10.43	0.065	20	
Manganese	1.890	0.0150	1.000	0.9016	98.8	75	125	1.884	0.324	20	
Nickel	1.006	0.0200	1.000		101	75	125	1.009	0.295	20	
Potassium	11.84	0.500	10.00	1.052	108	75	125	11.83	0.136	20	
Selenium	0.9750	0.0200	1.000		97.5	75	125	0.9761	0.117	20	
Silver	0.1031	0.0100	0.1000		103	75	125	0.1028	0.301	20	
Sodium	12.89	1.00	10.00	2.328	106	75	125	12.87	0.140	20	
Thallium	1.047	0.0200	1.000		105	75	125	1.047	0.029	20	
Vanadium	1.044	0.0100	1.000		104	75	125	1.045	0.101	20	
Zinc	0.9530	0.0200	1.000		95.3	75	125	0.9565	0.367	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279207**

Sample ID: MB-279207	Client ID:	Units: ug/L			Prep Date:	05/16/2019	Run No:	398260			
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260D	BatchID: 279207			Analysis Date:	05/16/2019	Seq No:	8925002			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	5.0									
1,1,2,2-Tetrachloroethane	BRL	5.0									
1,1,2-Trichloroethane	BRL	5.0									
1,1-Dichloroethane	BRL	5.0									
1,1-Dichloroethene	BRL	5.0									
1,2,4-Trichlorobenzene	BRL	5.0									
1,2-Dibromo-3-chloropropane	BRL	5.0									
1,2-Dibromoethane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,2-Dichloroethane	BRL	5.0									
1,2-Dichloropropane	BRL	5.0									
1,3-Dichlorobenzene	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	50									
Benzene	BRL	5.0									
Bromodichloromethane	BRL	5.0									
Bromoform	BRL	5.0									
Bromomethane	BRL	5.0									
Carbon disulfide	BRL	5.0									
Carbon tetrachloride	BRL	5.0									
Chlorobenzene	BRL	5.0									
Chloroethane	BRL	10									
Chloroform	BRL	5.0									
Chloromethane	BRL	10									

Qualifiers: > Greater than Result value
 BRL Below reporting limit
 J Estimated value detected below Reporting Limit
 Rpt Lim Reporting Limit

< Less than Result value
 E Estimated (value above quantitation range)
 N Analyte not NELAC certified
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank
 H Holding times for preparation or analysis exceeded
 R RPD outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279207**

Sample ID: MB-279207	Client ID:	Units: ug/L			Prep Date:	05/16/2019	Run No:	398260			
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260D	BatchID: 279207			Analysis Date:	05/16/2019	Seq No:	8925002			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	5.0									
cis-1,3-Dichloropropene	BRL	5.0									
Cyclohexane	BRL	5.0									
Dibromochloromethane	BRL	5.0									
Dichlorodifluoromethane	BRL	10									
Ethylbenzene	BRL	5.0									
Freon-113	BRL	10									
Isopropylbenzene	BRL	5.0									
m,p-Xylene	BRL	5.0									
Methyl acetate	BRL	5.0									
Methyl tert-butyl ether	BRL	5.0									
Methylcyclohexane	BRL	5.0									
Methylene chloride	BRL	5.0									
o-Xylene	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
trans-1,3-Dichloropropene	BRL	5.0									
Trichloroethene	BRL	5.0									
Trichlorofluoromethane	BRL	5.0									
Vinyl chloride	BRL	2.0									
Surr: 4-Bromofluorobenzene	47.05	0	50.00		94.1	64	125				
Surr: Dibromofluoromethane	50.76	0	50.00		102	76.4	125				
Surr: Toluene-d8	49.02	0	50.00		98.0	78.3	116				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279207**

Sample ID: LCS-279207	Client ID:				Units: ug/L	Prep Date: 05/16/2019	Run No: 398260				
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260D				BatchID: 279207	Analysis Date: 05/16/2019	Seq No: 8925003				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	20.08	5.0	20.00		100	69	136				
Benzene	20.93	5.0	20.00		105	73.7	126				
Chlorobenzene	20.04	5.0	20.00		100	73.5	124				
Toluene	20.87	5.0	20.00		104	76.8	125				
Trichloroethene	21.46	5.0	20.00		107	70.9	124				
Surr: 4-Bromofluorobenzene	50.88	0	50.00		102	64	125				
Surr: Dibromofluoromethane	51.04	0	50.00		102	76.4	125				
Surr: Toluene-d8	49.41	0	50.00		98.8	78.3	116				

Sample ID: 1905F87-006AMS	Client ID:				Units: ug/L	Prep Date: 05/16/2019	Run No: 398524				
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260D				BatchID: 279207	Analysis Date: 05/20/2019	Seq No: 8930805				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	22.03	5.0	20.00		110	63.8	146				
Benzene	19.72	5.0	20.00		98.6	70.2	137				
Chlorobenzene	20.59	5.0	20.00		103	72.7	141				
Toluene	21.50	5.0	20.00		108	67	141				
Trichloroethene	20.66	5.0	20.00		103	69.3	141				
Surr: 4-Bromofluorobenzene	48.21	0	50.00		96.4	64	125				
Surr: Dibromofluoromethane	52.17	0	50.00		104	76.4	125				
Surr: Toluene-d8	50.48	0	50.00		101	78.3	116				

Sample ID: 1905F87-006AMSD	Client ID:				Units: ug/L	Prep Date: 05/16/2019	Run No: 398524				
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260D				BatchID: 279207	Analysis Date: 05/20/2019	Seq No: 8930807				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	21.64	5.0	20.00		108	63.8	146	22.03	1.79	20.8	
Benzene	19.96	5.0	20.00		99.8	70.2	137	19.72	1.21	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279207**

Sample ID: 1905F87-006AMSD	Client ID:				Units: ug/L	Prep Date: 05/16/2019	Run No: 398524				
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260D				BatchID: 279207	Analysis Date: 05/20/2019	Seq No: 8930807				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chlorobenzene	20.77	5.0	20.00		104	72.7	141	20.59	0.870	20	
Toluene	21.97	5.0	20.00		110	67	141	21.50	2.16	20	
Trichloroethene	21.27	5.0	20.00		106	69.3	141	20.66	2.91	17.9	
Surr: 4-Bromofluorobenzene	49.02	0	50.00		98.0	64	125	48.21	0	0	
Surr: Dibromofluoromethane	53.35	0	50.00		107	76.4	125	52.17	0	0	
Surr: Toluene-d8	50.97	0	50.00		102	78.3	116	50.48	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279210**

Sample ID: MB-279210	Client ID:				Units: ug/L	Prep Date: 05/16/2019	Run No: 398401				
SampleType: MBLK	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E				BatchID: 279210	Analysis Date: 05/17/2019	Seq No: 8927853				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1'-Biphenyl	BRL	10									
2,4,5-Trichlorophenol	BRL	25									
2,4,6-Trichlorophenol	BRL	10									
2,4-Dichlorophenol	BRL	10									
2,4-Dimethylphenol	BRL	10									
2,4-Dinitrophenol	BRL	25									
2,4-Dinitrotoluene	BRL	10									
2,6-Dinitrotoluene	BRL	10									
2-Chloronaphthalene	BRL	10									
2-Chlorophenol	BRL	10									
2-Methylnaphthalene	BRL	10									
2-Methylphenol	BRL	10									
2-Nitroaniline	BRL	25									
2-Nitrophenol	BRL	10									
3,3'-Dichlorobenzidine	BRL	10									
3-Nitroaniline	BRL	25									
4,6-Dinitro-2-methylphenol	BRL	25									
4-Bromophenyl phenyl ether	BRL	10									
4-Chloro-3-methylphenol	BRL	10									
4-Chloroaniline	BRL	10									
4-Chlorophenyl phenyl ether	BRL	10									
4-Methylphenol	BRL	10									
4-Nitroaniline	BRL	25									
4-Nitrophenol	BRL	25									
Acenaphthene	BRL	10									
Acenaphthylene	BRL	10									
Acetophenone	BRL	10									

Qualifiers: > Greater than Result value
 BRL Below reporting limit
 J Estimated value detected below Reporting Limit
 Rpt Lim Reporting Limit

< Less than Result value
 E Estimated (value above quantitation range)
 N Analyte not NELAC certified
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank
 H Holding times for preparation or analysis exceeded
 R RPD outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279210**

Sample ID: MB-279210	Client ID:				Units: ug/L	Prep Date: 05/16/2019	Run No: 398401				
SampleType: MBLK	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E				BatchID: 279210	Analysis Date: 05/17/2019	Seq No: 8927853				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Anthracene	BRL	10									
Atrazine	BRL	10									
Benz(a)anthracene	BRL	10									
Benzaldehyde	BRL	10									
Benzo(a)pyrene	BRL	10									
Benzo(b)fluoranthene	BRL	10									
Benzo(g,h,i)perylene	BRL	10									
Benzo(k)fluoranthene	BRL	10									
Bis(2-chloroethoxy)methane	BRL	10									
Bis(2-chloroethyl)ether	BRL	10									
Bis(2-chloroisopropyl)ether	BRL	10									
Bis(2-ethylhexyl)phthalate	BRL	10									
Butyl benzyl phthalate	BRL	10									
Caprolactam	BRL	10									
Carbazole	BRL	10									
Chrysene	BRL	10									
Di-n-butyl phthalate	BRL	10									
Di-n-octyl phthalate	BRL	10									
Dibenz(a,h)anthracene	BRL	10									
Dibenzofuran	BRL	10									
Diethyl phthalate	BRL	10									
Dimethyl phthalate	BRL	10									
Fluoranthene	BRL	10									
Fluorene	BRL	10									
Hexachlorobenzene	BRL	10									
Hexachlorobutadiene	BRL	10									
Hexachlorocyclopentadiene	BRL	10									

Qualifiers: > Greater than Result value

< Less than Result value

B Analyte detected in the associated method blank

BRL Below reporting limit

E Estimated (value above quantitation range)

H Holding times for preparation or analysis exceeded

J Estimated value detected below Reporting Limit

N Analyte not NELAC certified

R RPD outside limits due to matrix

Rpt Lim Reporting Limit

S Spike Recovery outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279210**

Sample ID: MB-279210	Client ID:				Units: ug/L	Prep Date: 05/16/2019	Run No: 398401				
SampleType: MBLK	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E				BatchID: 279210	Analysis Date: 05/17/2019	Seq No: 8927853				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Hexachloroethane	BRL	10									
Indeno(1,2,3-cd)pyrene	BRL	10									
Isophorone	BRL	10									
N-Nitrosodi-n-propylamine	BRL	10									
N-Nitrosodiphenylamine	BRL	10									
Naphthalene	BRL	10									
Nitrobenzene	BRL	10									
Pentachlorophenol	BRL	25									
Phenanthrene	BRL	10									
Phenol	BRL	10									
Pyrene	BRL	10									
Surr: 2,4,6-Tribromophenol	83.76	0	100.0		83.8	47	127				
Surr: 2-Fluorobiphenyl	41.34	0	50.00		82.7	47.4	119				
Surr: 2-Fluorophenol	36.64	0	100.0		36.6	26.2	120				
Surr: 4-Terphenyl-d14	36.78	0	50.00		73.6	45	133				
Surr: Nitrobenzene-d5	37.19	0	50.00		74.4	41.9	121				
Surr: Phenol-d5	22.73	0	100.0		22.7	17.8	120				

Sample ID: LCS-279210	Client ID:				Units: ug/L	Prep Date: 05/16/2019	Run No: 398401				
SampleType: LCS	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E				BatchID: 279210	Analysis Date: 05/17/2019	Seq No: 8931996				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4-Dinitrotoluene	101.4	10	100.0		101	60.1	123				
2-Chlorophenol	81.97	10	100.0		82.0	50.6	120				
4-Chloro-3-methylphenol	87.56	10	100.0		87.6	59.5	122				
4-Nitrophenol	42.29	25	100.0		42.3	20	120				
Acenaphthene	89.42	10	100.0		89.4	60.5	119				
N-Nitrosodi-n-propylamine	84.81	10	100.0		84.8	62.3	127				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279210**

Sample ID: LCS-279210	Client ID:	Units: ug/L			Prep Date:	05/16/2019	Run No:	398401			
SampleType: LCS	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E	BatchID: 279210			Analysis Date:	05/17/2019	Seq No:	8931996			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Pentachlorophenol	52.82	25	100.0		52.8	50.9	120				
Phenol	29.89	10	100.0		29.9	20.1	120				
Pyrene	89.40	10	100.0		89.4	68.8	139				
Surr: 2,4,6-Tribromophenol	101.6	0	100.0		102	47	127				
Surr: 2-Fluorobiphenyl	50.36	0	50.00		101	47.4	119				
Surr: 2-Fluorophenol	47.62	0	100.0		47.6	26.2	120				
Surr: 4-Terphenyl-d14	47.67	0	50.00		95.3	45	133				
Surr: Nitrobenzene-d5	44.86	0	50.00		89.7	41.9	121				
Surr: Phenol-d5	28.94	0	100.0		28.9	17.8	120				

Sample ID: 1905B86-001BMS	Client ID:	Units: ug/L			Prep Date:	05/16/2019	Run No:	398401			
SampleType: MS	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E	BatchID: 279210			Analysis Date:	05/17/2019	Seq No:	8931998			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4-Dinitrotoluene	75.08	10	100.0		75.1	50.3	123				
2-Chlorophenol	52.26	10	100.0		52.3	50.8	120				
4-Chloro-3-methylphenol	58.49	10	100.0		58.5	47.1	124				
4-Nitrophenol	25.03	25	100.0		25.0	21.8	120				
Acenaphthene	61.86	10	100.0		61.9	44.7	119				
N-Nitrosodi-n-propylamine	64.11	10	100.0		64.1	52.1	120				
Pentachlorophenol	35.34	25	100.0		35.3	40	120				S
Phenol	17.83	10	100.0		17.8	31.5	120				S
Pyrene	59.09	10	100.0	1.890	57.2	51	129				
Surr: 2,4,6-Tribromophenol	68.35	0	100.0		68.4	47	127				
Surr: 2-Fluorobiphenyl	31.94	0	50.00		63.9	47.4	119				
Surr: 2-Fluorophenol	26.91	0	100.0		26.9	26.2	120				
Surr: 4-Terphenyl-d14	26.87	0	50.00		53.7	45	133				
Surr: Nitrobenzene-d5	32.20	0	50.00		64.4	41.9	121				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279210**

Sample ID: 1905B86-001BMS	Client ID:				Units: ug/L	Prep Date: 05/16/2019	Run No: 398401				
SampleType: MS	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E				BatchID: 279210	Analysis Date: 05/17/2019	Seq No: 8931998				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: Phenol-d5	17.29	0	100.0		17.3	17.8	120				S
Sample ID: 1905B86-001BMSD	Client ID:				Units: ug/L	Prep Date: 05/16/2019	Run No: 398401				
SampleType: MSD	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E				BatchID: 279210	Analysis Date: 05/17/2019	Seq No: 8931999				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4-Dinitrotoluene	90.94	10	100.0		90.9	50.3	123	75.08	19.1	21.7	
2-Chlorophenol	71.58	10	100.0		71.6	50.8	120	52.26	31.2	24.8	R
4-Chloro-3-methylphenol	79.96	10	100.0		80.0	47.1	124	58.49	31.0	20.7	R
4-Nitrophenol	30.49	25	100.0		30.5	21.8	120	25.03	19.7	38.3	
Acenaphthene	82.85	10	100.0		82.8	44.7	119	61.86	29.0	20.5	R
N-Nitrosodi-n-propylamine	83.36	10	100.0		83.4	52.1	120	64.11	26.1	29.2	
Pentachlorophenol	41.29	25	100.0		41.3	40	120	35.34	15.5	30.7	
Phenol	1.860	10	100.0		1.86	31.5	120	17.83	0	28.5	JS
Pyrene	84.36	10	100.0	1.890	82.5	51	129	59.09	35.2	24.8	R
Surr: 2,4,6-Tribromophenol	87.30	0	100.0		87.3	47	127	68.35	0	0	
Surr: 2-Fluorobiphenyl	43.04	0	50.00		86.1	47.4	119	31.94	0	0	
Surr: 2-Fluorophenol	35.33	0	100.0		35.3	26.2	120	26.91	0	0	
Surr: 4-Terphenyl-d14	40.50	0	50.00		81.0	45	133	26.87	0	0	
Surr: Nitrobenzene-d5	41.38	0	50.00		82.8	41.9	121	32.20	0	0	
Surr: Phenol-d5	23.07	0	100.0		23.1	17.8	120	17.29	0	0	

Qualifiers: > Greater than Result value
 BRL Below reporting limit
 J Estimated value detected below Reporting Limit
 Rpt Lim Reporting Limit

< Less than Result value
 E Estimated (value above quantitation range)
 N Analyte not NELAC certified
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank
 H Holding times for preparation or analysis exceeded
 R RPD outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279253**

Sample ID: MB-279253	Client ID:				Units: mg/L	Prep Date: 05/17/2019	Run No: 398432				
SampleType: MBLK	TestCode: Mercury, Total	SW7470A			BatchID: 279253	Analysis Date: 05/17/2019	Seq No: 8928619				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.000077	0.00020									J
Sample ID: LCS-279253	Client ID:				Units: mg/L	Prep Date: 05/17/2019	Run No: 398432				
SampleType: LCS	TestCode: Mercury, Total	SW7470A			BatchID: 279253	Analysis Date: 05/17/2019	Seq No: 8928620				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.004774	0.00020	0.0050	0.00007700	93.9	80	120				
Sample ID: 1905B86-001CMS	Client ID:				Units: mg/L	Prep Date: 05/17/2019	Run No: 398432				
SampleType: MS	TestCode: Mercury, Total	SW7470A			BatchID: 279253	Analysis Date: 05/17/2019	Seq No: 8928622				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.004814	0.00020	0.0050	0.00008388	94.6	75	125				
Sample ID: 1905B86-001CMSD	Client ID:				Units: mg/L	Prep Date: 05/17/2019	Run No: 398432				
SampleType: MSD	TestCode: Mercury, Total	SW7470A			BatchID: 279253	Analysis Date: 05/17/2019	Seq No: 8928623				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Mercury	0.004662	0.00020	0.0050	0.00008388	91.6	75	125	0.004814	3.19	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279284**

Sample ID: MB-279284	Client ID: TestCode: TCL VOLATILE ORGANICS SW8260D	Units: ug/Kg	Prep Date: 05/17/2019	Run No: 398342							
SampleType: MBLK		BatchID: 279284	Analysis Date: 05/17/2019	Seq No: 8926752							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	250									
1,1,2,2-Tetrachloroethane	BRL	250									
1,1,2-Trichloroethane	BRL	250									
1,1-Dichloroethane	BRL	250									
1,1-Dichloroethene	BRL	250									
1,2,4-Trichlorobenzene	BRL	250									
1,2-Dibromo-3-chloropropane	BRL	250									
1,2-Dibromoethane	BRL	250									
1,2-Dichlorobenzene	BRL	250									
1,2-Dichloroethane	BRL	250									
1,2-Dichloropropane	BRL	250									
1,3-Dichlorobenzene	BRL	250									
1,4-Dichlorobenzene	BRL	250									
2-Butanone	BRL	2500									
2-Hexanone	BRL	500									
4-Methyl-2-pentanone	BRL	500									
Acetone	BRL	5000									
Benzene	BRL	250									
Bromodichloromethane	BRL	250									
Bromoform	BRL	250									
Bromomethane	BRL	250									
Carbon disulfide	BRL	500									
Carbon tetrachloride	BRL	250									
Chlorobenzene	BRL	250									
Chloroethane	BRL	500									
Chloroform	BRL	250									
Chloromethane	BRL	500									

Qualifiers: > Greater than Result value
 BRL Below reporting limit
 J Estimated value detected below Reporting Limit
 Rpt Lim Reporting Limit

< Less than Result value
 E Estimated (value above quantitation range)
 N Analyte not NELAC certified
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank
 H Holding times for preparation or analysis exceeded
 R RPD outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279284**

Sample ID: MB-279284	Client ID:	Units: ug/Kg			Prep Date:	05/17/2019	Run No:	398342			
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260D	BatchID: 279284			Analysis Date:	05/17/2019	Seq No:	8926752			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	250									
cis-1,3-Dichloropropene	BRL	250									
Cyclohexane	BRL	250									
Dibromochloromethane	BRL	250									
Dichlorodifluoromethane	BRL	500									
Ethylbenzene	BRL	250									
Freon-113	BRL	500									
Isopropylbenzene	BRL	250									
m,p-Xylene	BRL	250									
Methyl acetate	BRL	250									
Methyl tert-butyl ether	BRL	250									
Methylcyclohexane	BRL	250									
Methylene chloride	BRL	1000									
o-Xylene	BRL	250									
Styrene	BRL	250									
Tetrachloroethene	BRL	250									
Toluene	BRL	250									
trans-1,2-Dichloroethene	BRL	250									
trans-1,3-Dichloropropene	BRL	250									
Trichloroethene	BRL	250									
Trichlorofluoromethane	BRL	250									
Vinyl chloride	BRL	500									
Surr: 4-Bromofluorobenzene	1996	0	2500		79.8	65.1	125				
Surr: Dibromofluoromethane	2218	0	2500		88.7	77.7	123				
Surr: Toluene-d8	2182	0	2500		87.3	83.2	120				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279284**

Sample ID: LCS-279284	Client ID: TCL VOLATILE ORGANICS SW8260D	Units: ug/Kg	Prep Date: 05/17/2019	Run No: 398342							
SampleType: LCS	TestCode: 279284	BatchID: 279284	Analysis Date: 05/17/2019	Seq No: 8926750							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	2424	250	2500		97.0	67.6	140				
Benzene	2525	250	2500		101	71.3	130				
Chlorobenzene	2604	250	2500		104	70.6	135				
Toluene	2474	250	2500		99.0	70.4	127				
Trichloroethene	2562	250	2500		102	68.6	138				
Surr: 4-Bromofluorobenzene	2044	0	2500		81.8	65.1	125				
Surr: Dibromofluoromethane	2247	0	2500		89.9	77.7	123				
Surr: Toluene-d8	2212	0	2500		88.5	83.2	120				

Sample ID: 1905B96-003AMS	Client ID: HPPE-SS-01	Units: ug/Kg-dry	Prep Date: 05/17/2019	Run No: 398342							
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260D	BatchID: 279284	Analysis Date: 05/17/2019	Seq No: 8929415							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	6944	670	6721		103	61.8	140				
Benzene	7410	670	6721		110	69	131				
Chlorobenzene	7331	670	6721		109	69.5	133				
Toluene	7030	670	6721		105	65.9	133				
Trichloroethene	7530	670	6721		112	65.9	135				
Surr: 4-Bromofluorobenzene	5756	0	6721		85.6	65.1	125				
Surr: Dibromofluoromethane	6068	0	6721		90.3	77.7	123				
Surr: Toluene-d8	5999	0	6721		89.3	83.2	120				

Sample ID: 1905B96-003AMSD	Client ID: HPPE-SS-01	Units: ug/Kg-dry	Prep Date: 05/17/2019	Run No: 398342							
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260D	BatchID: 279284	Analysis Date: 05/17/2019	Seq No: 8929416							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	7530	670	6721		112	61.8	140	6944	8.10	18.5	
Benzene	7367	670	6721		110	69	131	7410	0.582	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279284**

Sample ID: 1905B96-003AMSD	Client ID: HPPE-SS-01				Units: ug/Kg-dry	Prep Date: 05/17/2019	Run No: 398342				
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260D				BatchID: 279284	Analysis Date: 05/17/2019	Seq No: 8929416				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chlorobenzene	7518	670	6721		112	69.5	133	7331	2.52	20	
Toluene	7031	670	6721		105	65.9	133	7030	0.019	20	
Trichloroethene	7468	670	6721		111	65.9	135	7530	0.825	20	
Surr: 4-Bromofluorobenzene	5672	0	6721		84.4	65.1	125	5756	0	0	
Surr: Dibromofluoromethane	5971	0	6721		88.8	77.7	123	6068	0	0	
Surr: Toluene-d8	5861	0	6721		87.2	83.2	120	5999	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279288**

Sample ID: MB-279288	Client ID:				Units: ug/Kg	Prep Date: 05/16/2019	Run No: 398314				
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260D				BatchID: 279288	Analysis Date: 05/16/2019	Seq No: 8925854				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	5.0									
1,1,2,2-Tetrachloroethane	BRL	5.0									
1,1,2-Trichloroethane	BRL	5.0									
1,1-Dichloroethane	BRL	5.0									
1,1-Dichloroethene	BRL	5.0									
1,2,4-Trichlorobenzene	BRL	5.0									
1,2-Dibromo-3-chloropropane	BRL	5.0									
1,2-Dibromoethane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,2-Dichloroethane	BRL	5.0									
1,2-Dichloropropane	BRL	5.0									
1,3-Dichlorobenzene	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	17.78	100									J
Benzene	BRL	5.0									
Bromodichloromethane	BRL	5.0									
Bromoform	BRL	5.0									
Bromomethane	BRL	5.0									
Carbon disulfide	BRL	10									
Carbon tetrachloride	BRL	5.0									
Chlorobenzene	BRL	5.0									
Chloroethane	BRL	10									
Chloroform	BRL	5.0									
Chloromethane	BRL	10									

Qualifiers: > Greater than Result value

< Less than Result value

B Analyte detected in the associated method blank

BRL Below reporting limit

E Estimated (value above quantitation range)

H Holding times for preparation or analysis exceeded

J Estimated value detected below Reporting Limit

N Analyte not NELAC certified

R RPD outside limits due to matrix

Rpt Lim Reporting Limit

S Spike Recovery outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279288**

Sample ID: MB-279288	Client ID:	Units: ug/Kg			Prep Date:	05/16/2019	Run No:	398314			
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260D	BatchID: 279288			Analysis Date:	05/16/2019	Seq No:	8925854			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
cis-1,2-Dichloroethene	BRL	5.0									
cis-1,3-Dichloropropene	BRL	5.0									
Cyclohexane	BRL	5.0									
Dibromochloromethane	BRL	5.0									
Dichlorodifluoromethane	BRL	10									
Ethylbenzene	BRL	5.0									
Freon-113	BRL	10									
Isopropylbenzene	BRL	5.0									
m,p-Xylene	BRL	5.0									
Methyl acetate	BRL	5.0									
Methyl tert-butyl ether	BRL	5.0									
Methylcyclohexane	BRL	5.0									
Methylene chloride	7.220	20									J
o-Xylene	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
trans-1,3-Dichloropropene	BRL	5.0									
Trichloroethene	BRL	5.0									
Trichlorofluoromethane	BRL	5.0									
Vinyl chloride	BRL	10									
Surr: 4-Bromofluorobenzene	48.52	0	50.00		97.0	65.1	125				
Surr: Dibromofluoromethane	51.14	0	50.00		102	77.7	123				
Surr: Toluene-d8	49.81	0	50.00		99.6	83.2	120				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279288**

Sample ID: LCS-279288	Client ID:				Units: ug/Kg	Prep Date: 05/16/2019	Run No: 398314				
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260D				BatchID: 279288	Analysis Date: 05/16/2019	Seq No: 8926016				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	52.02	5.0	50.00		104	67.6	140				
Benzene	51.31	5.0	50.00		103	71.3	130				
Chlorobenzene	51.02	5.0	50.00		102	70.6	135				
Toluene	51.52	5.0	50.00		103	70.4	127				
Trichloroethene	52.03	5.0	50.00		104	68.6	138				
Surr: 4-Bromofluorobenzene	50.37	0	50.00		101	65.1	125				
Surr: Dibromofluoromethane	50.80	0	50.00		102	77.7	123				
Surr: Toluene-d8	50.55	0	50.00		101	83.2	120				

Sample ID: 1905B86-003AMS	Client ID:				Units: ug/Kg-dry	Prep Date: 05/16/2019	Run No: 398314				
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260D				BatchID: 279288	Analysis Date: 05/16/2019	Seq No: 8926835				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	50.58	5.2	52.21		96.9	61.8	140				
Benzene	48.31	5.2	52.21		92.5	69	131				
Chlorobenzene	46.26	5.2	52.21		88.6	69.5	133				
Toluene	47.25	5.2	52.21		90.5	65.9	133				
Trichloroethene	48.27	5.2	52.21		92.5	65.9	135				
Surr: 4-Bromofluorobenzene	49.05	0	52.21		94.0	65.1	125				
Surr: Dibromofluoromethane	53.94	0	52.21		103	77.7	123				
Surr: Toluene-d8	52.49	0	52.21		101	83.2	120				

Sample ID: 1905B86-003AMSD	Client ID:				Units: ug/Kg-dry	Prep Date: 05/16/2019	Run No: 398314				
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260D				BatchID: 279288	Analysis Date: 05/16/2019	Seq No: 8926836				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1-Dichloroethene	53.47	5.2	52.12		103	61.8	140	50.58	5.56	18.5	
Benzene	51.77	5.2	52.12		99.3	69	131	48.31	6.91	20	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279288**

Sample ID: 1905B86-003AMSD	Client ID:	Units: ug/Kg-dry			Prep Date:	05/16/2019	Run No:	398314			
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260D	BatchID: 279288			Analysis Date:	05/16/2019	Seq No:	8926836			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chlorobenzene	46.72	5.2	52.12		89.6	69.5	133	46.26	0.986	20	
Toluene	48.91	5.2	52.12		93.8	65.9	133	47.25	3.47	20	
Trichloroethene	50.40	5.2	52.12		96.7	65.9	135	48.27	4.32	20	
Surr: 4-Bromofluorobenzene	48.42	0	52.12		92.9	65.1	125	49.05	0	0	
Surr: Dibromofluoromethane	52.33	0	52.12		100	77.7	123	53.94	0	0	
Surr: Toluene-d8	51.83	0	52.12		99.4	83.2	120	52.49	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279180**

Sample ID: MB-279180	Client ID:	Units: ug/Kg	Prep Date: 05/16/2019	Run No: 398262							
SampleType: MBLK	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E	BatchID: 279180	Analysis Date: 05/16/2019	Seq No: 8926725							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1'-Biphenyl	BRL	330									
2,4,5-Trichlorophenol	BRL	1700									
2,4,6-Trichlorophenol	BRL	330									
2,4-Dichlorophenol	BRL	330									
2,4-Dimethylphenol	BRL	330									
2,4-Dinitrophenol	BRL	1700									
2,4-Dinitrotoluene	BRL	330									
2,6-Dinitrotoluene	BRL	330									
2-Chloronaphthalene	BRL	330									
2-Chlorophenol	BRL	330									
2-Methylnaphthalene	BRL	330									
2-Methylphenol	BRL	330									
2-Nitroaniline	BRL	1700									
2-Nitrophenol	BRL	330									
3,3'-Dichlorobenzidine	BRL	670									
3-Nitroaniline	BRL	1700									
4,6-Dinitro-2-methylphenol	BRL	1700									
4-Bromophenyl phenyl ether	BRL	330									
4-Chloro-3-methylphenol	BRL	330									
4-Chloroaniline	BRL	330									
4-Chlorophenyl phenyl ether	BRL	330									
4-Methylphenol	BRL	330									
4-Nitroaniline	BRL	1700									
4-Nitrophenol	BRL	1700									
Acenaphthene	BRL	330									
Acenaphthylene	BRL	330									
Acetophenone	BRL	330									

Qualifiers: > Greater than Result value
 BRL Below reporting limit
 J Estimated value detected below Reporting Limit
 Rpt Lim Reporting Limit

< Less than Result value
 E Estimated (value above quantitation range)
 N Analyte not NELAC certified
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank
 H Holding times for preparation or analysis exceeded
 R RPD outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279180**

Sample ID: MB-279180	Client ID:	Units: ug/Kg			Prep Date:	05/16/2019	Run No:	398262			
SampleType: MBLK	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E	BatchID: 279180			Analysis Date:	05/16/2019	Seq No:	8926725			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Anthracene	BRL	330									
Atrazine	BRL	330									
Benz(a)anthracene	BRL	330									
Benzaldehyde	BRL	330									
Benzo(a)pyrene	BRL	330									
Benzo(b)fluoranthene	BRL	330									
Benzo(g,h,i)perylene	BRL	330									
Benzo(k)fluoranthene	BRL	330									
Bis(2-chloroethoxy)methane	BRL	330									
Bis(2-chloroethyl)ether	BRL	330									
Bis(2-chloroisopropyl)ether	BRL	330									
Bis(2-ethylhexyl)phthalate	BRL	330									
Butyl benzyl phthalate	BRL	330									
Caprolactam	BRL	330									
Carbazole	BRL	330									
Chrysene	BRL	330									
Di-n-butyl phthalate	BRL	330									
Di-n-octyl phthalate	BRL	330									
Dibenz(a,h)anthracene	BRL	330									
Dibenzofuran	BRL	330									
Diethyl phthalate	BRL	330									
Dimethyl phthalate	BRL	330									
Fluoranthene	BRL	330									
Fluorene	BRL	330									
Hexachlorobenzene	BRL	330									
Hexachlorobutadiene	BRL	330									
Hexachlorocyclopentadiene	BRL	660									

Qualifiers: > Greater than Result value
 BRL Below reporting limit
 J Estimated value detected below Reporting Limit
 Rpt Lim Reporting Limit

< Less than Result value
 E Estimated (value above quantitation range)
 N Analyte not NELAC certified
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank
 H Holding times for preparation or analysis exceeded
 R RPD outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279180**

Sample ID: MB-279180	Client ID:				Units: ug/Kg	Prep Date: 05/16/2019	Run No: 398262				
SampleType: MBLK	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E				BatchID: 279180	Analysis Date: 05/16/2019	Seq No: 8926725				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Hexachloroethane	BRL	330									
Indeno(1,2,3-cd)pyrene	BRL	330									
Isophorone	BRL	330									
N-Nitrosodi-n-propylamine	BRL	330									
N-Nitrosodiphenylamine	BRL	330									
Naphthalene	BRL	330									
Nitrobenzene	BRL	330									
Pentachlorophenol	BRL	1700									
Phenanthrene	BRL	330									
Phenol	BRL	330									
Pyrene	BRL	330									
Surr: 2,4,6-Tribromophenol	2893	0	3333		86.8	45.6	120				
Surr: 2-Fluorobiphenyl	1554	0	1667		93.2	51.4	120				
Surr: 2-Fluorophenol	2635	0	3333		79.0	40.9	120				
Surr: 4-Terphenyl-d14	1696	0	1667		102	52.2	129				
Surr: Nitrobenzene-d5	1477	0	1667		88.6	40	120				
Surr: Phenol-d5	2757	0	3333		82.7	45	120				

Sample ID: 1905B27-002BMS	Client ID:				Units: ug/Kg-dry	Prep Date: 05/16/2019	Run No: 398262				
SampleType: MS1	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E				BatchID: 279180	Analysis Date: 05/16/2019	Seq No: 8926728				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1'-Biphenyl	2749	360	3641	0	75.5	50	150	0	0	0	
2,4,5-Trichlorophenol	2447	1900	3641	0	67.2	37.7	120	0	0	0	
2,4,6-Trichlorophenol	2583	360	3641	0	71.0	46	120	0	0	0	
2,4-Dichlorophenol	2723	360	3641	0	74.8	41.4	120	0	0	0	
2,4-Dimethylphenol	3144	360	3641	0	86.3	44	120	0	0	0	
2,4-Dinitrophenol	2509	1900	3641	0	68.9	1	172.9	0	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279180**

Sample ID: 1905B27-002BMS	Client ID:	Units: ug/Kg-dry			Prep Date:	05/16/2019	Run No: 398262				
SampleType: MS1	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E	BatchID: 279180			Analysis Date:	05/16/2019	Seq No: 8926728				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2,4-Dinitrotoluene	2859	360	3641	0	78.5	41.7	120	0	0	0	
2,6-Dinitrotoluene	2876	360	3641	0	79.0	43.8	123	0	0	0	
2-Chloronaphthalene	2590	360	3641	0	71.1	50	150	0	0	0	
2-Chlorophenol	2893	360	3641	0	79.5	42.9	120	0	0	0	
2-Methylnaphthalene	2834	360	3641	0	77.8	50	150	0	0	0	
2-Methylphenol	2850	360	3641	0	78.3	41.5	120	0	0	0	
2-Nitroaniline	2954	1900	3641	0	81.1	50	150	0	0	0	
2-Nitrophenol	3387	360	3641	0	93.0	45	167	0	0	0	
3,3'-Dichlorobenzidine	3083	730	3641	0	84.7	26	120	0	0	0	
3-Nitroaniline	2589	1900	3641	0	71.1	50	150	0	0	0	
4,6-Dinitro-2-methylphenol	2888	1900	3641	0	79.3	50	150	0	0	0	
4-Bromophenyl phenyl ether	2808	360	3641	0	77.1	43.5	123	0	0	0	
4-Chloro-3-methylphenol	2915	360	3641	0	80.1	41.1	120	0	0	0	
4-Chloroaniline	2237	360	3641	0	61.5	50	150	0	0	0	
4-Chlorophenyl phenyl ether	2635	360	3641	0	72.4	38.4	150	0	0	0	
4-Methylphenol	2793	360	3641	0	76.7	42.9	120	0	0	0	
4-Nitroaniline	2751	1900	3641	0	75.6	50	150	0	0	0	
4-Nitrophenol	2023	1900	3641	0	55.6	32	120	0	0	0	
Acenaphthene	2687	360	3641	0	73.8	51.5	120	0	0	0	
Acenaphthylene	2705	360	3641	0	74.3	46.2	121	0	0	0	
Acetophenone	1841	360	3641	0	50.6	50	150	0	0	0	
Anthracene	2888	360	3641	0	79.3	53.4	120	0	0	0	
Atrazine	1202	360	3641	0	33.0	50	150	0	0	0	S
Benz(a)anthracene	2727	360	3641	0	74.9	46.8	123	0	0	0	
Benzaldehyde	203.2	360	3641	0	5.58	10	150	0	0	0	JS
Benzo(a)pyrene	3058	360	3641	0	84.0	37.5	122	0	0	0	
Benzo(b)fluoranthene	2791	360	3641	0	76.7	34.7	124	0	0	0	

Qualifiers: > Greater than Result value

< Less than Result value

B Analyte detected in the associated method blank

BRL Below reporting limit

E Estimated (value above quantitation range)

H Holding times for preparation or analysis exceeded

J Estimated value detected below Reporting Limit

N Analyte not NELAC certified

R RPD outside limits due to matrix

Rpt Lim Reporting Limit

S Spike Recovery outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279180**

Sample ID: 1905B27-002BMS	Client ID:	Units: ug/Kg-dry			Prep Date:	05/16/2019	Run No: 398262				
SampleType: MS1	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E	BatchID: 279180			Analysis Date:	05/16/2019	Seq No: 8926728				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzo(g,h,i)perylene	2936	360	3641	0	80.6	46	150	0	0	0	
Benzo(k)fluoranthene	2920	360	3641	0	80.2	50	150	0	0	0	
Bis(2-chloroethoxy)methane	2652	360	3641	0	72.8	48.7	120	0	0	0	
Bis(2-chloroethyl)ether	2769	360	3641	0	76.0	41.3	120	0	0	0	
Bis(2-chloroisopropyl)ether	3306	360	3641	0	90.8	34	120	0	0	0	
Bis(2-ethylhexyl)phthalate	2839	360	3641	0	78.0	43.3	132	0	0	0	
Butyl benzyl phthalate	2990	360	3641	0	82.1	1	150	0	0	0	
Caprolactam	2754	360	3641	0	75.6	50	150	0	0	0	
Carbazole	3192	360	3641	0	87.7	50	150	0	0	0	
Chrysene	2810	360	3641	0	77.2	50.8	120	0	0	0	
Di-n-butyl phthalate	3104	360	3641	0	85.3	50.5	129	0	0	0	
Di-n-octyl phthalate	3010	360	3641	0	82.7	44.9	123	0	0	0	
Dibenz(a,h)anthracene	2999	360	3641	0	82.4	44.9	126	0	0	0	
Dibenzofuran	2668	360	3641	0	73.3	50	150	0	0	0	
Diethyl phthalate	2709	360	3641	0	74.4	44.5	120	0	0	0	
Dimethyl phthalate	2647	360	3641	0	72.7	48	120	0	0	0	
Fluoranthene	2964	360	3641	0	81.4	51	121	0	0	0	
Fluorene	2552	360	3641	0	70.1	47.4	119	0	0	0	
Hexachlorobenzene	2861	360	3641	0	78.6	50.1	120	0	0	0	
Hexachlorobutadiene	2741	360	3641	0	75.3	48.1	120	0	0	0	
Hexachlorocyclopentadiene	1112	720	3641	0	30.6	1	150	0	0	0	
Hexachloroethane	3035	360	3641	0	83.4	50	150	0	0	0	
Indeno(1,2,3-cd)pyrene	2974	360	3641	0	81.7	50	150	0	0	0	
Isophorone	2372	360	3641	0	65.1	46.6	180.2	0	0	0	
N-Nitrosodi-n-propylamine	2834	360	3641	0	77.8	50.2	120	0	0	0	
N-Nitrosodiphenylamine	1783	360	3641	0	49.0	36.2	120	0	0	0	
Naphthalene	2835	360	3641	0	77.9	44.7	120	0	0	0	

Qualifiers: > Greater than Result value

< Less than Result value

B Analyte detected in the associated method blank

BRL Below reporting limit

E Estimated (value above quantitation range)

H Holding times for preparation or analysis exceeded

J Estimated value detected below Reporting Limit

N Analyte not NELAC certified

R RPD outside limits due to matrix

Rpt Lim Reporting Limit

S Spike Recovery outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279180**

Sample ID: 1905B27-002BMS	Client ID:				Units: ug/Kg-dry	Prep Date:	05/16/2019	Run No: 398262			
SampleType: MS1	TestCode: TCL-SEMVOLATILE ORGANICS SW8270E				BatchID: 279180	Analysis Date:	05/16/2019	Seq No: 8926728			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Nitrobenzene	2839	360	3641	0	78.0	42.3	120	0	0	0	
Pentachlorophenol	1464	1900	3641	0	40.2	38.4	120	0	0	0	J
Phenanthrene	2934	360	3641	0	80.6	50	150	0	0	0	
Phenol	2549	360	3641	0	70.0	41.5	120	0	0	0	
Pyrene	2762	360	3641	0	75.9	42.7	120	0	0	0	
Surr: 2,4,6-Tribromophenol	2823	0	3641	0	77.5	40.2	120	0	0	0	
Surr: 2-Fluorobiphenyl	1418	0	1821	0	77.9	45.6	120	0	0	0	
Surr: 2-Fluorophenol	2543	0	3641	0	69.9	35.2	120	0	0	0	
Surr: 4-Terphenyl-d14	1418	0	1821	0	77.9	51	121	0	0	0	
Surr: Nitrobenzene-d5	1550	0	1821	0	85.2	37.8	120	0	0	0	
Surr: Phenol-d5	2848	0	3641	0	78.2	39.9	120	0	0	0	

Sample ID: 1905B27-002BMSD	Client ID:				Units: ug/Kg-dry	Prep Date:	05/16/2019	Run No: 398262			
SampleType: MSD1	TestCode: TCL-SEMVOLATILE ORGANICS SW8270E				BatchID: 279180	Analysis Date:	05/16/2019	Seq No: 8926729			
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1'-Biphenyl	2685	360	3641	0	73.8	50	150	2749	2.36	40	
2,4,5-Trichlorophenol	2351	1900	3641	0	64.6	37.7	120	2447	4.02	29.8	
2,4,6-Trichlorophenol	2503	360	3641	0	68.8	46	120	2583	3.15	31.2	
2,4-Dichlorophenol	2608	360	3641	0	71.6	41.4	120	2723	4.34	31	
2,4-Dimethylphenol	2927	360	3641	0	80.4	44	120	3144	7.14	25.9	
2,4-Dinitrophenol	1964	1900	3641	0	53.9	1	172.9	2509	24.4	50	
2,4-Dinitrotoluene	2776	360	3641	0	76.2	41.7	120	2859	2.95	33.1	
2,6-Dinitrotoluene	2764	360	3641	0	75.9	43.8	123	2876	4.00	20	
2-Chloronaphthalene	2774	360	3641	0	76.2	50	150	2590	6.86	30	
2-Chlorophenol	2800	360	3641	0	76.9	42.9	120	2893	3.29	30.7	
2-Methylnaphthalene	2754	360	3641	0	75.6	50	150	2834	2.85	40	
2-Methylphenol	2844	360	3641	0	78.1	41.5	120	2850	0.205	23.1	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit		S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279180**

Sample ID: 1905B27-002BMSD	Client ID:	Units: ug/Kg-dry			Prep Date:	05/16/2019	Run No: 398262				
SampleType: MSD1	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E	BatchID: 279180			Analysis Date:	05/16/2019	Seq No: 8926729				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
2-Nitroaniline	2823	1900	3641	0	77.5	50	150	2954	4.51	40	
2-Nitrophenol	3171	360	3641	0	87.1	45	167	3387	6.58	35	
3,3'-Dichlorobenzidine	BRL	730	3641	0	0	26	120	3083	0	41	S
3-Nitroaniline	2080	1900	3641	0	57.1	50	150	2589	21.8	40	
4,6-Dinitro-2-methylphenol	2777	1900	3641	0	76.3	50	150	2888	3.92	93	
4-Bromophenyl phenyl ether	2793	360	3641	0	76.7	43.5	123	2808	0.507	31.9	
4-Chloro-3-methylphenol	2844	360	3641	0	78.1	41.1	120	2915	2.48	40.5	
4-Chloroaniline	2021	360	3641	0	55.5	50	150	2237	10.2	40	
4-Chlorophenyl phenyl ether	2520	360	3641	0	69.2	38.4	150	2635	4.45	33	
4-Methylphenol	2749	360	3641	0	75.5	42.9	120	2793	1.59	30.7	
4-Nitroaniline	1712	1900	3641	0	47.0	50	150	2751	0	40	JS
4-Nitrophenol	1720	1900	3641	0	47.2	32	120	2023	0	37.9	J
Acenaphthene	2633	360	3641	0	72.3	51.5	120	2687	2.04	26.3	
Acenaphthylene	2639	360	3641	0	72.5	46.2	121	2705	2.48	20	
Acetophenone	1786	360	3641	0	49.0	50	150	1841	3.07	40	S
Anthracene	2853	360	3641	0	78.4	53.4	120	2888	1.22	40.3	
Atrazine	1657	360	3641	0	45.5	50	150	1202	31.8	40	S
Benz(a)anthracene	2675	360	3641	0	73.5	46.8	123	2727	1.93	29	
Benzaldehyde	222.5	360	3641	0	6.11	10	150	203.2	0	50	JS
Benzo(a)pyrene	2956	360	3641	0	81.2	37.5	122	3058	3.38	28.7	
Benzo(b)fluoranthene	2666	360	3641	0	73.2	34.7	124	2791	4.58	26.8	
Benzo(g,h,i)perylene	2888	360	3641	0	79.3	46	150	2936	1.65	30	
Benzo(k)fluoranthene	2957	360	3641	0	81.2	50	150	2920	1.26	30	
Bis(2-chloroethoxy)methane	2561	360	3641	0	70.3	48.7	120	2652	3.48	20	
Bis(2-chloroethyl)ether	2758	360	3641	0	75.8	41.3	120	2769	0.382	21.9	
Bis(2-chloroisopropyl)ether	3232	360	3641	0	88.8	34	120	3306	2.27	32.4	
Bis(2-ethylhexyl)phthalate	2823	360	3641	0	77.5	43.3	132	2839	0.540	20	

Qualifiers: > Greater than Result value

< Less than Result value

B Analyte detected in the associated method blank

BRL Below reporting limit

E Estimated (value above quantitation range)

H Holding times for preparation or analysis exceeded

J Estimated value detected below Reporting Limit

N Analyte not NELAC certified

R RPD outside limits due to matrix

Rpt Lim Reporting Limit

S Spike Recovery outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279180**

Sample ID: 1905B27-002BMSD	Client ID:	Units: ug/Kg-dry			Prep Date:	05/16/2019	Run No: 398262				
SampleType: MSD1	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E	BatchID: 279180			Analysis Date:	05/16/2019	Seq No: 8926729				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Butyl benzyl phthalate	3140	360	3641	0	86.3	1	150	2990	4.92	30	
Caprolactam	2750	360	3641	0	75.5	50	150	2754	0.132	40	
Carbazole	3003	360	3641	0	82.5	50	150	3192	6.10	40	
Chrysene	2748	360	3641	0	75.5	50.8	120	2810	2.24	36.8	
Di-n-butyl phthalate	3005	360	3641	0	82.5	50.5	129	3104	3.25	20	
Di-n-octyl phthalate	3023	360	3641	0	83.0	44.9	123	3010	0.447	19.3	
Dibenz(a,h)anthracene	3034	360	3641	0	83.3	44.9	126	2999	1.17	30.4	
Dibenzofuran	2608	360	3641	0	71.6	50	150	2668	2.26	30	
Diethyl phthalate	2669	360	3641	0	73.3	44.5	120	2709	1.50	28.1	
Dimethyl phthalate	2568	360	3641	0	70.5	48	120	2647	3.03	20	
Fluoranthene	2850	360	3641	0	78.3	51	121	2964	3.92	26.7	
Fluorene	2495	360	3641	0	68.5	47.4	119	2552	2.25	27.4	
Hexachlorobenzene	2727	360	3641	0	74.9	50.1	120	2861	4.78	33.6	
Hexachlorobutadiene	2603	360	3641	0	71.5	48.1	120	2741	5.16	35.9	
Hexachlorocyclopentadiene	994.4	720	3641	0	27.3	1	150	1112	11.2	50	
Hexachloroethane	2959	360	3641	0	81.3	50	150	3035	2.54	30	
Indeno(1,2,3-cd)pyrene	2922	360	3641	0	80.3	50	150	2974	1.75	30	
Isophorone	2297	360	3641	0	63.1	46.6	180.2	2372	3.21	63	
N-Nitrosodi-n-propylamine	2786	360	3641	0	76.5	50.2	120	2834	1.70	34.9	
N-Nitrosodiphenylamine	1738	360	3641	0	47.7	36.2	120	1783	2.59	31.3	
Naphthalene	2727	360	3641	0	74.9	44.7	120	2835	3.86	20.4	
Nitrobenzene	2689	360	3641	0	73.9	42.3	120	2839	5.41	20.8	
Pentachlorophenol	1389	1900	3641	0	38.2	38.4	120	1464	0	35.9	JS
Phenanthrene	2837	360	3641	0	77.9	50	150	2934	3.33	30	
Phenol	2448	360	3641	0	67.2	41.5	120	2549	4.04	37.4	
Pyrene	2798	360	3641	0	76.8	42.7	120	2762	1.28	35	
Surr: 2,4,6-Tribromophenol	2798	0	3641	0	76.9	40.2	120	2823	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279180**

Sample ID: 1905B27-002BMSD	Client ID:					Units: ug/Kg-dry	Prep Date: 05/16/2019	Run No: 398262
SampleType: MSD1	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E					BatchID: 279180	Analysis Date: 05/16/2019	Seq No: 8926729
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val
Surr: 2-Fluorobiphenyl	1418	0	1821	0	77.9	45.6	120	1418
Surr: 2-Fluorophenol	2578	0	3641	0	70.8	35.2	120	2543
Surr: 4-Terphenyl-d14	1447	0	1821	0	79.5	51	121	1418
Surr: Nitrobenzene-d5	1496	0	1821	0	82.2	37.8	120	1550
Surr: Phenol-d5	2772	0	3641	0	76.1	39.9	120	2848
Sample ID: LCS-279180	Client ID:					Units: ug/Kg	Prep Date: 05/16/2019	Run No: 398262
SampleType: LCS1	TestCode: TCL-SEMOVOLATILE ORGANICS SW8270E					BatchID: 279180	Analysis Date: 05/16/2019	Seq No: 8926726
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val
1,1'-Biphenyl	2956	330	3333	0	88.7	50	150	0
2,4,5-Trichlorophenol	2479	1700	3333	0	74.4	63.2	120	0
2,4,6-Trichlorophenol	2592	330	3333	0	77.8	66.2	120	0
2,4-Dichlorophenol	2966	330	3333	0	89.0	59.7	120	0
2,4-Dimethylphenol	3342	330	3333	0	100	57	120	0
2,4-Dinitrophenol	2529	1700	3333	0	75.9	1	172.9	0
2,4-Dinitrotoluene	3167	330	3333	0	95.0	56.9	120	0
2,6-Dinitrotoluene	3099	330	3333	0	93.0	60.9	138	0
2-Chloronaphthalene	3038	330	3333	0	91.1	50	150	0
2-Chlorophenol	3183	330	3333	0	95.5	51	120	0
2-Methylnaphthalene	3009	330	3333	0	90.3	50	150	0
2-Methylphenol	3046	330	3333	0	91.4	52.1	120	0
2-Nitroaniline	3187	1700	3333	0	95.6	50	150	0
2-Nitrophenol	3556	330	3333	0	107	45	167	0
3,3'-Dichlorobenzidine	3454	670	3333	0	104	30.4	120	0
3-Nitroaniline	2749	1700	3333	0	82.5	50	150	0
4,6-Dinitro-2-methylphenol	3103	1700	3333	0	93.1	50	150	0
4-Bromophenyl phenyl ether	3141	330	3333	0	94.2	56.6	143	0

Qualifiers: > Greater than Result value

< Less than Result value

B Analyte detected in the associated method blank

BRL Below reporting limit

E Estimated (value above quantitation range)

H Holding times for preparation or analysis exceeded

J Estimated value detected below Reporting Limit

N Analyte not NELAC certified

R RPD outside limits due to matrix

Rpt Lim Reporting Limit

S Spike Recovery outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279180**

Sample ID: LCS-279180	Client ID:	Units: ug/Kg			Prep Date:	05/16/2019	Run No: 398262				
SampleType: LCS1	TestCode: TCL-SEMOVATILE ORGANICS SW8270E	BatchID: 279180			Analysis Date:	05/16/2019	Seq No: 8926726				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
4-Chloro-3-methylphenol	3086	330	3333	0	92.6	54	120	0	0	0	
4-Chloroaniline	2472	330	3333	0	74.2	50	150	0	0	0	
4-Chlorophenyl phenyl ether	2873	330	3333	0	86.2	38.4	150	0	0	0	
4-Methylphenol	3055	330	3333	0	91.6	61.2	122	0	0	0	
4-Nitroaniline	3032	1700	3333	0	91.0	50	150	0	0	0	
4-Nitrophenol	2057	1700	3333	0	61.7	40.7	120	0	0	0	
Acenaphthene	2953	330	3333	0	88.6	57.9	120	0	0	0	
Acenaphthylene	2954	330	3333	0	88.6	59.7	136	0	0	0	
Acetophenone	1982	330	3333	0	59.5	50	150	0	0	0	
Anthracene	3150	330	3333	0	94.5	64.4	123	0	0	0	
Atrazine	1758	330	3333	0	52.7	50	150	0	0	0	
Benz(a)anthracene	2973	330	3333	0	89.2	70	129	0	0	0	
Benzo(a)pyrene	3384	330	3333	0	102	69.1	131	0	0	0	
Benzo(b)fluoranthene	2977	330	3333	0	89.3	55.7	139	0	0	0	
Benzo(g,h,i)perylene	3194	330	3333	0	95.8	46	150	0	0	0	
Benzo(k)fluoranthene	3386	330	3333	0	102	50	150	0	0	0	
Bis(2-chloroethoxy)methane	2872	330	3333	0	86.2	63.7	120	0	0	0	
Bis(2-chloroethyl)ether	3082	330	3333	0	92.5	54	120	0	0	0	
Bis(2-chloroisopropyl)ether	3579	330	3333	0	107	45.9	120	0	0	0	
Bis(2-ethylhexyl)phthalate	3006	330	3333	0	90.2	54.2	147	0	0	0	
Butyl benzyl phthalate	3215	330	3333	0	96.5	1	150	0	0	0	
Caprolactam	2938	330	3333	0	88.2	50	150	0	0	0	
Carbazole	3546	330	3333	0	106	50	150	0	0	0	
Chrysene	2921	330	3333	0	87.6	70	120	0	0	0	
Di-n-butyl phthalate	3437	330	3333	0	103	60.8	146	0	0	0	
Di-n-octyl phthalate	3187	330	3333	0	95.6	57.9	134	0	0	0	
Dibenz(a,h)anthracene	3427	330	3333	0	103	63.9	137	0	0	0	

Qualifiers: > Greater than Result value

< Less than Result value

B Analyte detected in the associated method blank

BRL Below reporting limit

E Estimated (value above quantitation range)

H Holding times for preparation or analysis exceeded

J Estimated value detected below Reporting Limit

N Analyte not NELAC certified

R RPD outside limits due to matrix

Rpt Lim Reporting Limit

S Spike Recovery outside limits due to matrix

Client: Tetra Tech EM Inc.
Project Name: HPPE Columbus GA Fish Kill
Workorder: 1905B96

ANALYTICAL QC SUMMARY REPORT**BatchID: 279180**

Sample ID: LCS-279180	Client ID:	Units: ug/Kg			Prep Date:	05/16/2019	Run No: 398262				
SampleType: LCS1	TestCode: TCL-SEMOVATILE ORGANICS SW8270E	BatchID: 279180			Analysis Date:	05/16/2019	Seq No: 8926726				
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Dibenzofuran	2929	330	3333	0	87.9	50	150	0	0	0	
Diethyl phthalate	2979	330	3333	0	89.4	70	126	0	0	0	
Dimethyl phthalate	2908	330	3333	0	87.2	63.5	138	0	0	0	
Fluoranthene	3274	330	3333	0	98.2	70.1	133	0	0	0	
Fluorene	2783	330	3333	0	83.5	68.4	124	0	0	0	
Hexachlorobenzene	3196	330	3333	0	95.9	63.1	131	0	0	0	
Hexachlorobutadiene	2965	330	3333	0	89.0	44.5	122	0	0	0	
Hexachlorocyclopentadiene	1222	660	3333	0	36.7	1	150	0	0	0	
Hexachloroethane	3332	330	3333	0	100.0	50	150	0	0	0	
Indeno(1,2,3-cd)pyrene	3289	330	3333	0	98.7	50	150	0	0	0	
Isophorone	2556	330	3333	0	76.7	46.6	180.2	0	0	0	
N-Nitrosodi-n-propylamine	3050	330	3333	0	91.5	56.5	124	0	0	0	
N-Nitrosodiphenylamine	1944	330	3333	0	58.3	45.2	120	0	0	0	
Naphthalene	3071	330	3333	0	92.1	61.3	120	0	0	0	
Nitrobenzene	3059	330	3333	0	91.8	57.1	122	0	0	0	
Pentachlorophenol	1559	1700	3333	0	46.8	41.8	120	0	0	0	J
Phenanthrene	3242	330	3333	0	97.3	50	150	0	0	0	
Phenol	2776	330	3333	0	83.3	50.1	120	0	0	0	
Pyrene	2971	330	3333	0	89.1	59.4	120	0	0	0	
Surr: 2,4,6-Tribromophenol	3065	0	3333	0	91.9	40.2	120	0	0	0	
Surr: 2-Fluorobiphenyl	1571	0	1667	0	94.3	45.6	120	0	0	0	
Surr: 2-Fluorophenol	2919	0	3333	0	87.6	35.2	120	0	0	0	
Surr: 4-Terphenyl-d14	1574	0	1667	0	94.5	51	121	0	0	0	
Surr: Nitrobenzene-d5	1697	0	1667	0	102	37.8	120	0	0	0	
Surr: Phenol-d5	3113	0	3333	0	93.4	39.9	120	0	0	0	

Qualifiers: > Greater than Result value
 BRL Below reporting limit
 J Estimated value detected below Reporting Limit
 Rpt Lim Reporting Limit

< Less than Result value
 E Estimated (value above quantitation range)
 N Analyte not NELAC certified
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank
 H Holding times for preparation or analysis exceeded
 R RPD outside limits due to matrix